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JUNE, 1917

SUBSCRIPTION RATES.—One year, $1.00; two years, $1.50; three years, $2.00; five years, $3.00. Canadian subscription, 30 cents additional per year, and foreign subscription, 60 cents additional. **DISCONTINUANCES.**—On and after March 1, 1917, all subscriptions, not paid in advance, or specifically ordered by the subscriber to be continued, will be stopped on expiration. No subscriber will be run into debt by us for this journal. **CHANGE OF ADDRESS.**—Give your old address as well as the new and write the name that appears on the paper. **REMITTANCE.**—Should be sent by postoffice money order, bank draft, express money order or check. **CONTRIBUTIONS** to Gleanings columns solicited: stamps should be enclosed to insure return to author of manuscript if not printed. **ADVERTISING RATES.**—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. **ADVERTISERS' RELIABILITY.**—The publishers use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

(Entered as second class mail matter at the Postoffice at Medina, Ohio.)

THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff

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HONEY MARKETS

BASIS OF PRICE QUOTATIONS.

The prices listed below, unless otherwise stated, are those at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NEW YORK.—Comb honey is well cleaned up, but there is still a fair demand for No. 1 and No. 2 fancy white at around 13 to 14 cts. per pound, according to quality and quantity. There is no demand at all for lower grades. Extracted honey is in good demand, and very few stocks on the market at this time. The new crop is beginning to arrive now quite freely from the South, and finds ready sale, prices ranging from 90 cts. to $1.25 per gallon, according to quality. Beeswax is steady; prices from 40 to 42. Hildreth & Segelken.
New York, May 17.

SYRACUSE.—While there is no active demand for honey, a limited amount is moving. The dealers are generally pretty well closed out of stock, and the producers have nothing to offer until the new crop arrives. We quote extra fancy comb honey, per case, $4.32; fancy, $3.84; No. 1, $3.60; No. 2, $3.00. White extracted honey brings 12½; light amber, in cans, 10.
Syracuse, N. Y., May 17. E. B. Ross.

ALBANY.—No demand for comb honey. We make an occasional sale at 10 cts. per section, regardless of quality and weights. Considerable comb is to be carried over; extracted is cleaned up.
Albany, N. Y., May 19. H. R. Wright.

BUFFALO.—Demand is very light; no white No. 1 honey is offering in this market. Dark buckwheat honey is still offering fairly free. We quote No. 1 dark comb honey, 12 to 13; No. 2 dark, 10 to 12.
Buffalo, N. Y., May 17. Gleason & Lansing.

PHILADELPHIA.—Nothing special to quote at this time. Entirely cleaned up on all extracted honey, as also under-grade comb. We are offering fancy comb at 18 to 20 cents as to quality. Trade quiet. We quote clean average yellow beeswax at 38 to 40. Chas. Munder.
Philadelphia, Pa., May 17.

BOSTON.—Market is well cleaned up on extracted. Comb is cleaning up well. New orange-bloom extracted just coming in. We quote extra fancy comb honey, per case, $3.50; fancy, $3.20; No. 1, $3.00; No. 2, $2.75; light amber extracted honey, in barrels, 12, orange bloom.
Boston, Mass., May 19. Blake-Lee Co.

CLEVELAND.—Our market is about cleaned up on comb honey. Very little of any grade now here. Demand is very light, as is always the case at this season of the year. A little sample of new Florida honey arrived a few days ago, but no price is put on it yet. We quote fancy comb honey, per case, $3.75 to $3.90; No. 1, $3.50 to $3.60.
Cleveland, O., May 18. C. Chandler's Sons.

DETROIT.—Comb honey is going slow at 17 to 18; supply is not large.
Detroit, Mich., May 17. F. P. Reynolds & Co.

FLORIDA.— Demand is brisk, supply liberal; quality the very best in years. We quote extra fancy, per case, $4.50; fancy, $4.00; No. 1, $3.00. Extracted honey, white (best orange bloom) brings 11 cts., f. o. b. here. Clean average yellow beeswax brings 37. S. S. Alderman.
Wewahitchka, Fla., May 17.

PITTSBURG.—Demand is very light—practically no change in prices and conditions from last report.
Pittsburg, Pa., May 5. W. E. Osborn Co.

PORTLAND.—Comb-honey demand is very light and stocks are about cleaned up. Extracted honey is in good demand, but scarce—only enough stock on hand to fill the local requirements. No extracted in producer's hands. Prospect for a good crop is very good at present. We quote extra fancy comb honey, per case, $3.50; fancy, $3.25; No. 1, $3.00; No. 2, $2.75. White extracted honey brings 9; light amber, in cans, 8; amber, 7. Clean average yellow beeswax brings 25 to 27.
Portland, Ore., May 11. Pacific Honey Co.

DENVER.—Comb honey is entirely cleaned up in this market; extracted honey also, except a small stock we need for our bottling requirements; have none to offer at present in 5-gallon cans. We decline to quote prices on new-crop honey for future delivery. Beeswax is wanted. For clean yellow we pay 38 cents cash and 40 in trade, delivered here.
The Colorado Honey Producers' Association.
Denver, Col., May 18. F. Rauchfuss, Mgr.

PHOENIX.—Conditions have improved since last report. Reports from nearby mesquite ranges are good, while now and then I receive reports showing an almost complete failure. However, from the rush for cases something must be happening or they would not order by wire. Some alfalfa has been extracted—light amber. Clean average yellow beeswax brings 33, mostly sold.
Phoenix, Ariz., May 17. Wm. Lossing.

TEXAS.—Shipments are expected to begin to move in about two weeks; only a light crop, but the best ever of catclaw honey. We quote fancy bulk comb honey, in 60-lb. cans, 11½; No. 1, half cent per pound rise for smaller sizes. White extracted honey, per lb., brings 9½. Clean average yellow beeswax brings 35. J. A. Simmons.
Sabinal, Texas., May 15.

ST. LOUIS.—With the exception of extracted honey there is very little honey moving at present. Extracted honey is in good demand, and stocks here are very low. We quote fancy comb honey, $3.00; No. 1, $2.75; No. 2, $2.50. Light-amber extracted honey, in cans, brings 9½ to 10; amber, in cans, 8½ to 9; in barrels 8. Clean average yellow beeswax brings 42½. R. Hartmann Produce Co.
St. Louis, Mo., May 17.

KANSAS CITY.—Market on extracted honey is very firm, and all dealers report a very light supply on hand. We quote fancy comb, $3.50; No. 1, $3.25; No. 2, $3.00. White extracted honey brings 12; light amber, in cans, 11; amber, in cans, 10. Clean average yellow beeswax brings per lb. 33 to 35.
C. C. Clemons Produce Co.
Kansas City, Mo., May 17.

CHICAGO.—As we are entirely cleaned up on honey, both comb and extracted, we find it difficult to quote prices, altho there is still a call for it. Beeswax brings 33 to 35 per lb., according to color and cleanliness.
Chicago, Ill., May 18. R. A. Burnett & Co.

LOS ANGELES.—Market is bare of extracted. New crop will come in as soon as the weather warms up; good local demand for the first fifteen cars. Comb remains easy, prices unchanged, but is expected to advance when old stocks are cleaned up. We quote extra fancy comb honey, per case, $4.25; fancy, $3.85; No. 1, $3.25; No. 2, $2.50. White extracted honey brings 12; light amber, in cans, 11; amber, 9. Clean average yellow beeswax brings 35.
Los Angeles, Cal., May 11. Geo. L. Emerson.

MONTREAL.—Stocks are light, demand quiet; prices firm. We quote extra fancy comb honey, per case, 19; fancy, 18; No. 1, 16; No. 2, 14; white extracted honey brings 14; light amber, in cans, 13;

in barrels, 12½; amber, in cans, 12; in barrels, 11½. Gunn, Langlois Co.
Montreal, Ont., May 18.

TORONTO.—There is practically no change in the market for honey in this city. Stocks are extremely small; and some lines of tins, such as 60's and 5's, are practically exhausted. With the higher price now being asked for pure fruit jams, honey will undoubtedly find a good sale when the new crop arrives.
Toronto, Ont., May 17. Eby-Blain Limited.

HAMILTON.—Honey in ten and five pound tins is selling well; 60-lb. tins are selling slow; comb honey selling fast. Beemen say it is hard to get tins of any size, and we ought to get busy after them. We quote fancy comb honey, $2.40; No. 1, $2.25. White extracted honey brings 14.
F. W. Fearman Co., Ltd.
Hamilton, Ont., May 17. McNab Street Branch.

SAN FRANCISCO.—We have no information as to honey at this time. Leutzinger & Lane.
San Francisco, Cal., May 14.

CUBA.—Light amber extracted honey brings $1.00 per gallon; amber, $1.00. Clean average yellow beeswax brings 40 cts. per lb.
Matanzas, Cuba, May 12. A. Marzol.

LIVERPOOL.—The honey market is steady, and buyers are waiting for offers of Chilian. Cuban sales on spot bring $19.20 to $21.60, per 100 lbs.; Jamaica, 100 casks sold at $23.28 to $25.20; some Spanish sold at $23.04 per cwt. Beeswax is dearer; 283 packages of all descriptions were offered and 126 sold. We quote Zanzibar yellow, slightly drossy to good, at $46.14 to $47.34. East Indian, bleached, fair to good, brings $44.94 to $46.14; unbleached ditto, dark to good genuine, $41.28 to $43.74 per cwt. Mozambique, drossy to good block, brings $41.88 to $46.86 per cwt.; ditto fair to good rolls, $46.26 to $47.34. Madagascar, dark to good palish, brings $43.74 to $46.62 per cwt. Abyssinian, rather drossy to pale, brings $44.94 to $47.34 per cwt.
Liverpool, Eng., May 4. Taylor & Co.

MEDINA.—In reporting the honey market at this time, we remind our readers of our report dated February 21, in which we said we believed the comb-honey crop would be well cleaned up, altho considerable was believed to be in producers' hands at that time. A careful survey of important markets recently, leads us to believe that there is very little old comb honey left, and the price has slightly improved. For old-stock white comb honey we are paying at present about 16 cts. for No. 1, and 18 for fancy. Of extracted honey there are practically no offerings at this time, and the market is largely speculative.
Medina, Ohio, May 23. The A. I. Root Co.

GLEANINGS IN BEE CULTURE

JUNE, 1917

EDITORIAL

GLEANINGS FEELS that its readers should have the benefit of all the facts and opinions from reliable sources that are in its possession. On the other hand, it hesitates lest some of these facts and opinions may be misleading. However, we shall take our chances and tell what we know, trusting to the good sense and intelligence of our readers, who will probably be able to guess as well as we can what the future price of honey will be.

HONEY MARKETS—PRESENT AND FUTURE

At the present time practically all the extracted honey, except some little lots in the hands of bottlers, brokers, and speculators, has been sold. Southern honey has begun to come in, and it is bringing good prices.

Buyers are out everywhere, contracting or trying to contract for the coming crop. In some cases producers have been foolish enough to sell their future crops as low as 6 and 7 cents in California. Where beekeepers are reading the bee-journals they are getting all the way from 7 to 11 cents. The best grades of extracted are being contracted for in California now for 10 cents; and some California orange has sold as high as 13 cents. These are all on future deliveries, mind you. Some carloads of amber of *last year's* crop have sold in New York, for export, for 15 cents, this high figure being due, undoubtedly, to war necessities and the general scarcity of extracted.

We are reliably informed that the British Government has been on the market for 5000 barrels of extracted honey, and the Russian Government for 3000 barrels more. Neither was able to get more than stray cars.

When war was declared in August, 1914, the price of southern honey went down to a very low figure—3 or 4 cents a pound; and now we have learned that some of that same honey (tupelo) is being delivered in New York at 12 cents.

Whence all this furore about extracted honey? While it is true that the general rise in the price of all food products, including sugar, has boosted the price of extracted, yet there are some other factors to be considered.

(1) Recent inquiries in New York among the brokers and large buyers show that there is an unusual demand for extracted honey for export. From the best information available it is apparent that European bakers are using immense quantities of honey to preserve cakes and bread: for it is a well-known fact that honey will keep baked goods soft and moist as almost nothing else will.

(2) An important factor is the scarcity of sugar in Europe. The price of this commodity has gone up there: and in some cases, at least, it cannot be had at any figure. The same thing may be said of syrups. Naturally, American honeys come in to fill up the gap.

(3) Honey is taking the place of glycerine in pharmaceutical prescriptions abroad. Glycerine that was formerly used in a very large way by druggists has become prohibitive in price on account of the European governments commandeering it for the manufacture of dynamite and other explosives. Honey in many of the prescriptions takes the place of glycerine, and it blends as readily with alcohol as does glycerine.

We have been advised that the new preparation that is placed over scalds, burns, and general wounds, and that has given such remarkable results, is almost two-thirds honey.

(4) It is apparent that the bottled-honey trade that has been advertised so extensively of late in this country has brought honey into the drugstores of the United States as never before; and as our druggists can scarcely get glycerine, they are using honey largely, where glycerine was formerly used.

One large broker, perhaps the largest buyer of honey in car lots, when we asked him recently in New York what the European governments were doing with so much

honey, said he did not know, but at once sent a cablegram of inquiry to his partner in London, and received the following answer:

"Honey not sold as rations, but purchased in a small way by the soldiers from the canteen committee."

But it is apparent, tho, that honey is being used in a large way by the soldiers in baked goods that are supplied to them; and they are also buying it direct from the canteens.

All of these facts are interesting to the beekeeper. Whether honey will continue to advance is a question. The recent action of Uncle Sam in curtailing the activities of the food speculators will have, and has already had, a tendency to reduce prices. This may or may not have some effect on the price of honey.

There is a possibility that there will be an embargo on honey for foreign shipments; but this is hardly probable, as the European governments are not going to shut off honey any more than they would wheat, peas, and beans. They must have some form of carbohydrate; and when sugar (a carbohydrate) cannot be had at any price, honey (another carbohydrate) will necessarily have to take its place.

Professor Jager, president of the National Beekeepers' Association, born in Austria, but every inch an American in sympathy, states that the Austrian soldiers use sugar on their long marches. He says he has known them to go 45 miles a day with a single pound of sugar, and with no other form of food. Physicians know that big-game hunters can take longer hikes on a pound of carbohydrate (sugar, molasses, or honey) than they can upon wheat or meat. Sugar or honey will furnish more and immediate energy to worn-out soldiers than perhaps anything else. But whether honey takes the place of sugar as the direct food of soldiers we do not know; but we see no reason why it should not be so used.

Some beekeepers, misled by the knowledge of abnormally high prices, will refuse to sell their product at any price. History repeats itself. There is always danger in this. Some years ago there were inflation prices on honey. Large numbers of beekeepers held for more. Finally the market took a tumble from which it took years to recover. Now that prices are taking a healthy upward growth, nothing should be done to disturb this by overboosting the market to a point at which the public refuses to buy and turns to the cheap glucose syrups as a substitute.

In the foregoing we have endeavored to state facts and opinions, so far as we have been able to get them, without fear or favor. All we can say is that honey has already reached a high level in price. What that price actually is today, or what it will be for the crop yet to be harvested, will depend on the grade of honey and the locality. Where there are numerous buyers, prices will be firm, and will range all the way from 7 to 11 cents on extracted—possibly higher. The intelligent producer will not be misled by abnormally high prices, nor will he be in haste to contract early in the season at low prices. Some reputable buyers are putting up a guarantee to pay, say, 8 cents, and as much more as the market will bear at the time the honey is ready to harvest. That form of contract should be to the mutual advantage of both producer and buyer. It combines good will, honesty, and honor.

Beekeepers are warned against contracting with speculators. In some cases, we are reliably informed, honey has been contracted for at 6 cents, and sold by the speculator at practically double that figure. GLEANINGS feels that the producer should get all the market will allow, less a reasonable profit to the legitimate middleman.

What beekeepers most earnestly desire is *stability* in the markets—not fancy prices that are temporarily inflated only to fall to a low level, nor yet low prices to start on that have a tendency to depress all the markets.

THE HONEY-CONTAINER SITUATION

RIGHT NOW IS NONE too early to learn fully and meet practically the very serious situation confronting honey-producers and honey-packers because of the very great scarcity of the usual containers.

What is the situation and what is the best remedy?

First, let us consider the tin-can situation. On the call of the Department of Commerce there came together at Washington on May 1 representatives of the tin-plate manufacturers and the tin-can manufacturers, the National Canners' Association, and the National Wholesale Grocers' Association, to consider means of conserving the supply of tin-plate and cans so as to insure ample facilities for the packing of the *perishable* crop of 1917. As a result of that meeting seven of the foremost tin-plate and tin-can manufacturers and leading representatives of canners' and grocers' associations were appointed a "committee on the conservation of tin-plate." That committee, on the suggestions of both the Department of Agriculture and the Department of Commerce,

have now recommended that tin-can makers supply tin cans only to packers of perishable food. The tin-can makers of the country have all (so far as we can learn) now agreed to follow this recommendation. Honey is not ruled a perishable food. Accordingly, no more tin cans can be furnished shippers or packers of honey until such time as all packers of perishable food products have been furnished a full supply of cans. That time will not likely be before the next fall season (possibly August). It may be interesting to know that two months before this radical action by the National Committee on the Conservation of Tinplate was taken, four of the largest tin-can manufacturers in the country, in reply to inquiries of The A. I. Root Company as to supplying tin cans, wrote that they had booked so many orders in advance that they were unable to quote any price or promise any supply.

That, then, is the tin-can situation today (May 20), and it is not likely to change materially for some time—at least not before the honey crop is harvested.

There are now, probably, some small stocks of honey-cans in the hands of dealers. Honey producers should first, then, make inquiry of their dealers for tin cans. But it is a certainty that these stocks are very small. The best advice to be given extracted-honey producers who must ship their product in bulk is to secure barrels for this purpose—and begin securing them at once. This advice is not only ours but is suggested by the Agricultural Department at Washington. A good barrel, such as has been used for containing alcohol or whisky, sterilized, dried and then paraffined, will serve. New barrels of best quality may also be used, but the price will be higher than those bought second-hand. Another substitute for tin cans that may be used by producers of alfalfa and sweet-clover honey in the West (such honey as granulates quickly) is the "Aikin bag," a waxed-paper product. The Aikin bag heretofore made has been for packages of one to ten pounds. A serious effort is now being made to manufacture successfully a much larger "Aikin bag," the uncertain result of which effort we will publish later.

What is the glass-container situation?

As we write, there lie before us letters from several of the largest glass-manufacturers of the country. The substance of these letters is that the manufacturers are months behind their orders, and have practically withdrawn from the market.

To learn exactly the possible supply of glass containers for honey-producers, GLEANINGS (thru The A. I. Root Co.) on May 18 telegraphed five of the leading manufacturers of packer glass as follows: "In next issue of our bee magazine, GLEANINGS IN BEE CULTURE, we desire to give authoritative information regarding glass honey-containers. Can you entertain quantity orders for summer delivery of honey tumblers and jars, and how will prices compare with one year ago? Wire reply."

Here are the replies received:

"We are sold out until November or December. Not offering any prices now."

"Capacity sold. Can not supply."

"We are sold up to July 1. We can not quote at this time for deliveries beyond, as costs too uncertain. Do not make tumblers at all."

The other two manufacturers were perhaps too busy to reply, or were even indignant to think that anybody should wire them about furnishing glass in quantities at this time.

These telegrams prove the existence of a glass-container famine, with no prospect of immediate relief.

Dr. Burton N. Gates, of Massachusetts, appointed by the conference of representative apiarists which met at Washington April 23 and 24 as a committee of one to ascertain the available supply of honey-containers, closes a discouraging report of an investigation made by him as to the status of glass-manufacturing, with this injunction: "It is respectfully urged that some means be provided to enable the small glass-user to know where and how to procure his containers."

Today, to answer practically and specifically "where and how to procure honey-containers," is impossible for even the largest and most experienced bottler of honey to do. As things stand, the hope of securing anything like a sufficiency of glass containers may be dismissed as being out of question. We know that The A. I. Root Company's bottling for the Airline honey is almost completely crippled for the want of glass containers; and altho they have had long and satisfactory connection with several of the largest packer-glass manufacturers in the country, they are today entirely out of containers for several of their largest lines and do not know how nor where to supply the want. The case is the same with other large bottlers.

To answer "where and how to procure containers," we can today only tell our readers of how The A. I. Root Company is energetically seeking to solve the problem. This is by the use of a fiber container, which is a treated paper product. The company has conditionally purchased one million six-ounce fiber containers to supply

the place of honey-tumblers. Let us emphasize to our readers that these containers are not yet a proved success; therefore they are purchased on condition that they prove capable in every way of holding honey without leaking. These containers are to be made on special order, printed on the outside of the container to order, and to stand every practical test. We can say that the tests of this container so far give great hope that it will prove a success. However, the top is made with a circular opening which is closed by a swedged paper cap. This paper cap has not in all tests proved nonleakable. It is this fault that the manufacturers are now very earnestly seeking to remedy. In other respects this container will stand hard handling and jolts, and even dropping from a considerable height on a floor or pavement. Therefore, while we again remind our readers that this fiber container is yet in the experimental stage, there is great hope of relief for the honey-bottlers from this direction. We may also add that The A. I. Root Company is trying to have developed a considerably larger container of the same kind, and have strong hopes that it will prove a success.

At this time we can not say more to our readers as to "where and how to procure containers." We do promise them that we will give them the fullest information that either GLEANINGS or The A. I. Root Company may secure concerning any practical method of meeting the present critical need for satisfactory and economical honey-containers, and hope to give in our July issue a final and definite report on the results obtained in the use of fiber containers.

MANY COMB-HONEY producers are laboring under the delusion that they cannot change their comb-honey appliances over into extracting except at a prohibitive expense. This is a mistake. In some instances, at least, the present active demand for extracted is justifying the change from comb honey to the production of extracted.

CHANGING TO EXTRACTED HONEY

Probably not many beekeepers are aware of the fact that two comb-honey supers for 4¼ x 4¼ sections of ordinary standard manufacture are just the right depth for a regular Langstroth extracting-frame. The two supers, one on top the other, can be held together by means of double-pointed tacks or crate staples that are furnished by all supply manufacturers, and when so superimposed are just right for Langstroth or standard Hoffman frames. All the extra expense is for brood-frames and brood foundation. If one already has a surplus of brood-combs he will not be required to make any extra investment.

If one uses supers for 4 x 5 sections, he can either use shallow extracting-frames adapted to these supers, and which are for sale by all dealers in bee-supplies, or he can tack two such supers together, when they will be of just the right depth for the Jumbo frames. Where the honey-flow comes in slowly, and extends over a considerable length of time, shallow extracting-frames for supers taking 4 x 5 sections are very generally in use.

While we do not feel inclined to advise every one to change over from comb to extracted honey, yet the extra demand for the latter would seem to justify, at least for this season, a temporary change over into the producton of extracted. And this change, as we have indicated, can be effected without any great expense.

We know of no reason why the erstwhile comb-honey producer should not run for both comb and extracted, using the weaker colonies for extracted and the stronger ones for comb honey.

SEVERE WINTER losses in Montana and Idaho and parts of Colorado, as well as some other western states, is making a very active demand for bees in package form without combs. The honey season in Texas is almost a failure; and we are reliably informed that Texas can send 10,000 to 20,000* lbs. of bees to states where prospects are good and where winter losses have occurred. Other southern states are contributing their quota of bees. Practically every package man, if he is not already oversold, is having all he can do to keep up with his orders.

HOW TO SHIP COMBLESS BEES

While those actively engaged in the business know how to ship bees without combs, there may be others who will require to know how this can be done.

In the first place we would advise all who propose shipping bees in this way to secure a sample package from some active shipper that he has used with success. Most supply manufacturers are able to furnish packages that will deliver bees from one point of the country to another.

An important and essential consideration is ventilation. That means that the cage

*For particulars write F. B. Paddock, College Station, Texas.

should be, inside cubic inches, at least three times as large as the volume of the bees when "jounced down" in a heap in the bottom of the cage. A larger volume will be better.

Where there are several packages in one shipment they should be crated together leaving about four inches of space between the cages to provide for air. When a single cage is shipped there should be projecting cleats on each side of the cage so that it can not be shoved up close to other packages shutting off the ventilation.

Another important and vital consideration is the candy. This should be the same thing that is used in ordinary queen-mailing cages. To prepare it, mix powdered sugar and honey heated to 140° F. into a stiff dough. But the honey, before using, should be boiled for at least 30 minutes in a closed container. The mixing should be done with a big spoon in a pan. So far the directions seem very simple; but it is an art to make candy and make it right. The lump of candy should be allowed to stand for two or three days in a warm room. If it becomes sticky, and "runs" (that is, softens sufficiently to spread out) in a shallow pan, more powdered sugar should be mixed in; but be careful not to overdo it. Too much honey or too much sugar will spoil the dough and kill every bee in the package before arrival at destination. When the candy is just right it will stand a temperature of 90° and not "run."

During extremely warm or hot weather it is advisable to have a bottle of water mounted in the top of the cage. This consists of a little tin can turned upside down, with a single perforation thru the cap of such a size as will just admit a No. 30 wire. Do not make it larger.

When practical, bees in package form should be moved in cool weather. When the temperature ranges between 80 and 90 during the middle hours of the day, the average shipper may expect some losses. To prevent overheating, printed directions on the outside of the package should tell the expressman to keep the bees out of the sun and not to put them in a close express room over night.

Just before starting the bees on their trip it is advisable to feed them some thin syrup made of sugar. This may be applied on the outside of the wire cloth by means of a rag dampened in the syrup; or it may be painted on the wire cloth.

Bees should not be put up in their packages until within about two hours of train time. They should not be allowed to stand in cages out in the sun. This is very important.

When the consignee receives the package he should give the bees sweetened water thru the wire cloth, as explained; and he should be careful not to overdo by daubing the bees.

DANDELION AS A HONEY-YIELDER

IN OUR ISSUE for April, page 252, in our write-up of dandelions we stated that while the plant "yielded little or no honey," it was useful mainly for the pollen it furnished. Since that time numerous correspondents from all over the United States where dandelion grows assure us that the plant does yield some honey—some years more than others. Mrs. Floyd Markham, Ypsilanti, Mich., writes that their bees one season gathered enough dandelion honey so they had quite a few sections filled and capped over. The flavor is rank and color dark. The nose, she said, could very easily tell what kind of honey it was before tasting.

The dandelion has never yielded any surplus in our locality—probably because we have too many bees for the territory; but we have always regarded it as extremely useful in starting bees in breeding; and in view of the general testimony we shall have to conclude that bees gather at least a little honey as well as a large amount of pollen from dandelion.

PATRIOTISM IN HONEY PRODUCTION

THESE ARE THE DAYS when the nation expects every man to do his duty. These are tremendously, awfully serious days. We are at war. Bloodshed and suffering of our own American boys will soon begin in the world's fight against that monstrous delusion of Prussianism and Kaiserism that might makes right. The great cause awaits America's strength and bravery. We shall not fail that cause. But this nation will be tried as never before. A part in that great trial will be a test of our resources and food supplies under the strain of war. The war, indeed, seems now likely to be won or lost by food conditions. Just here is where every citizen, who has the opportunity to produce any kind of food stuff, can enlist in the world's great cause as efficiently as can the soldier at the front—and here is where the beekeeper may enlist now and at once.

Let us repeat that all indications point to the fact that it will be impossible to pro-

duce enough honey the coming season to supply the demand. As in our May issue, so in this, we urge every beekeeper to produce the maximum of honey. If there are any old-time beekeepers in the vicinity whose methods are crude, and who allow excessive swarming, make arrangements if possible with all such to operate on shares, or, better, buy the bees outright.

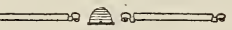
If there ever was a time when a colony would pay for its initial cost in one season and make a comfortable surplus, it will be this year. The present price of extracted honey, with the active demand for it, will make even a light crop pay first cost of the bees.

Honey is a necessary food, like wheat, bread, and meat. It helps to make up a balanced ration. Sugar is bound to be high and scarce, and honey must come in to take its place.

In a word, the beekeepers of the United States should join with the farmers and all others in increasing the food supply. The general movement is not only patriotic, but may be the means of saving many lives —if not in this country, in Europe.

PRICES ON COMB HONEY

ELSEWHERE MENTION is made of the active demand for extracted honey, both domestic and foreign. So far as we can discover, no such active demand prevails for comb honey for some of it is being held over and some granulated. Just at present it is hard to say how prices on comb will rule; but present indications do not show that they will be any higher than last year. There is a possibility that the price of extracted may reach the price of comb, with the advantage of lesser cost of production for the former. This would be unfortunate. Comb honey should always maintain an advance of from 35 to 50 per cent above extracted. It may do so the coming year. We hope so.



GOT STUCK ON COMB HONEY

WE HAVE LEARNED of a number of buyers of comb honey who bought too heavily of that commodity, and, not knowing the importance of keeping it in a warm room during the cold months, a lot of it granulated, with the result that they cannot unload. At present prices they can melt it up if they know how and sell the wax and honey separately and not lose much if any thing.

GOVERNMENT MARKET NEWS SERVICE

AN ANNOUNCEMENT of a better market news service to be expected from the United States Department of Agriculture, reaches us just as GLEANINGS is about to go to press. Every beekeeper who produces honey for wholesale market will read this announcement with keen interest. It is given out as follows:

In response to urgent requests, the Office of Markets and Rural Organization of the United States Department of Agriculture is planning to extend its telegraphic market news service to include reports on honey. Practically all growers in the important commercial sections shipping fruits and vegetables are familiar with the market bulletins which have been distributed by the Office of Markets during the past two seasons. These daily bulletins, which are free by mail to any who request them, cover nine of the more important perishable commodities and show daily the number of cars of each commodity which have been shipped from each State during the past twenty-four hours, as well as the following information for each of the eighteen markets reported by representatives of the Department. The number of cars which have been received on the market during the past twenty-four hours segregated by originating districts; the general quality and condition of the produce from each section; the weather conditions; and finally the prevailing wholesale (jobbing) prices at 8:00 a. m. These reports are telegraphed to Washington, summarized and edited, and rewired to the various markets where representatives are stationed, with the result that printed bulletins are issued and distributed simultaneously about 1 p. m. of the same day from all these offices. Some idea of the size of the service may be secured when it is understood that over 3,000,000 bulletins were distributed last season to over 50,000 persons located in more than thirty states.

Altho it is estimated that only 10 per cent of the honey crop is distributed in car-lot quantities, it is claimed that prices for the local movement depend to a large extent upon the commercial price. An accurate and unbiased report of prevailing prices in the larger markets should do much to prevent speculation, steady the market, and tend to eliminate the unfortunate practice of throwing the entire output upon the market at the opening of the season, with the resultant drop in prices and serious scarcity later in the season.

It is impossible at this time to state definitely the exact form in which the proposed honey reports will be issued, as representatives of the Department are now visiting the larger markets and interviewing members of the trade, representative producers, and editors of beekeeping journals to ascertain the exact information which is needed, the frequency with which the reports should be issued and other essential details. It appears probable, however, that the reports will be issued semi-weekly, weekly, or even bi-weekly, as daily reports are not essential as in the case of perishable fruits and vegetables. In contents they will follow closely the bulletins now being issued which have just been described. The service will be started about July 1, and the information will be made public thru the newspapers and beekeepers' journals as well as by separate bulletins by mail to all interested persons who request the information. All inquiries should be addressed to Charles J. Brand, Chief, Office of Markets and Rural Organization U. S. Department of Agriculture, Washington, D. C.

SUCCESS AFTER FAILURE

Fruit-growers Pay $5.00 a Colony for the Use of the Bees During the Blossoming Period

By E. R. Root

THERE is nothing that succeeds like success. On the other hand, bitter experience has shown that sometimes success does not come except thru failure; and sometimes it is necessary for one to meet severe defeat more than once before victory is his.

I have already told the story of the late John Repp—see GLEANINGS for Aug. 15, 1913, page 561, and again for May 1, 1914, page 348; how John Repp, on land that was considered good for nothing, made an attempt to go into the fruit business, but made a failure; of how he tried it again, and failed once more; of how the wagging heads made the prediction "no use; the man has not got it in him," and that "soil conditions" were wrong. But that was not John Repp. He tried the third time; and just as he was on the eve of success, or just as he had achieved success, he died. Fortunately he had a wife (still living and past 80) with pluck and determination. The spirit of the parents was bred in the boys, Albert, Charles, and Joseph. The dearly bought experience of the father, the irrepressible spirit of the dear mother, and the severe struggles of the boys during the time the father was trying to get on even terms with the world, was not without its value; and now the Repp brothers are famous the world over for their achievements in fruit-growing. They have 800 acres, 500 of which are devoted to fruit, and the whole country round about them has caught the spirit, so that there are now 5000 acres in Gloucester Co., N. J., devoted to the growing of apples, pears, peaches, cherries, and grapes. But it is easy to see that the orchards of the Repp brothers are in the lead.

So successful have these boys been that their enormous crops have to be stored in a mammoth cold-storage plant they built, capable of holding 120,000 bushels of apples; for it did not take them very long to see that such yields could not be all marketed at one time. The plant is one of the most modernly equipped that one can find in the country. So perfect are its appointments that some varieties can be kept sound and in good condition for three years, or until such time as the market is ready to receive them. And such apples! It was my pleasure to taste some of them, and I found them to be as sound and juicy as one could wish, with none of that wilted, mushy, or mealy taste.

The Repps built macadamized roads thru their orchards.

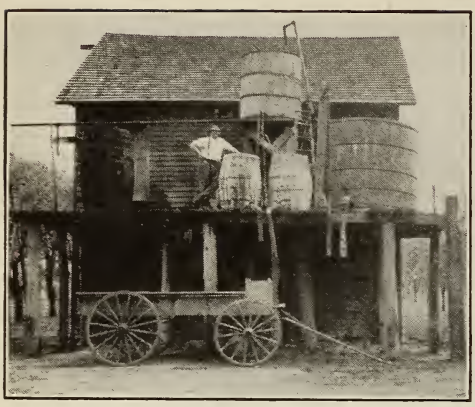
So far my story would be more suitable for a fruit journal than for a bee journal. But listen: The Repp boys would no more think of raising fruit without bees to pollinate the blossoms than they would attempt to get along without spraying or pruning.

Said Charley Repp, the present manager of the cold-storage plant and of the orchard business: "So indispensable are bees to the growing of fruit in this county that our fruit-growers have come to the conclusion that they can afford to pay local beemen the rate of $5.00 a colony to have the bees in the orchards during the time the trees are in bloom, and then take them away again." Think of it!

This is nearly equivalent to the price of the colony itself.

Mr. Repp went on to state that the qualities that make up a good fruit-grower do not necessarily make a good beekeeper. So he and his neighbors have concluded that it is cheaper in effect to buy the bees outright, and, after the season is over, give the bees back again to the beekeeper. The transaction is virtually a temporary purchase, with the proviso that the beeman can take away the property that he sold, and the following year come back and sell it again, and so on *ad infinitum*. That is a mighty good proposition, you may say, for the beekeeper; but it is probably a better one for the fruit-grower, because he has no responsibility in wintering, and, what is much more, he does not have to be bothered with the bees at a time of year when they are not needed. It is about time that some of the fruitmen in the country should wake up. If the apple-growers of New Jersey can afford to pay a rental of $5.00 for only three weeks, others can.

I took a number of photographs of the orchards. Picture No. 1 shows a road down thru the center of a big



The mixing-tanks where the spraying liquids are prepared.

tract of fruit-trees. As the ground is sandy, the owners found it necessary to macadamize all their roads. Over these the Repp boys cart their fruit in a five-ton truck to the highways. The building of permanent roads thruout the orchards is a necessity as well as good business judgment.

The trees had all been sprayed with lime sulphur. They all showed clean, healthy growth. The San Jose scale had been practically wiped out of the locality. But that makes no difference. The Repp brothers kept on spraying with lime sulphur. But bear this in mind: *they do not touch a spray-pump while the trees are in bloom,* for the work of the bees they must have.

Picture No. 2 shows where some of the spraying-liquids are mixed together. The power spray-wagons are then run under the big tank where they are filled.

Picture No. 3 gives a view of one of their numerous pear-orchards in the height of its prosperity. In all of the views it will be noticed that the Repp boys, as do all others in that locality, practice what is called "clean cultivation." The loose soil under the trees is thoroly harrowed—no small job when one considers the 500 (and even 5000) acres which must be covered. The upper right-hand corner shows one of the beeyards owned by the Repp brothers. Charley Repp went on to state that he had formerly pursued the policy of owning bees; but he had about come to the conclusion that it would be better to let the local beeman own them and then pay $5.00 per colony for about a month's use in the work of pollination. Mr. Repp believes in the policy of scattering the beeyards, and therefore has three apiaries, located on different parts of the fruit-farm.

Picture No. 4 gives a view of one of the Repp vineyards for the raising of Concord grapes. At the time of my visit, artificial fertilizer was being distributed over the ground that had been thoroly harrowed.

Picture No. 5 gives a view of a little

One of the numerous pear-orchards of the Repp brothers. Upper right-hand corner is a view of one of three bee-yards owned by the Repps, and which are for no other purpose than to pollinate the orchards.

One of the Concord vineyards owned by the Repp brothers. Notice the clean cultivation and the wire trellis.

flower-garden next to the home of Albert Repp; and in the background will be seen an apple-orchard such as one may see all over this 5000-acre tract of orchards.

RAISING FRUIT RATHER THAN HELL.

When the father, John Repp, was making failure after failure in his fruit-growing operations, no one, of course,, thought it worth while to go into the same line of business; but when he and his sons began to show that those failures spelled success, then everybody went into the business, including some of the liquor people, who were sore over the Repp boys' active fight against the saloons; for they said to the boys, "You cannot run against our business without having us run against yours. We are going to buy up all the land around you, and run opposition to you."

"All right," said Charley. "I would rather have you raise fruit than to raise hell."

When the dispensers of booze told him they were going to put in a mammoth cold-storage plant that would outrival his, and that they would make ice cheaper than he could, Charley snapped back that he would rather they would make ice than to make bums.

It seems the liquor men did buy up some land, and put it into fruit, for they were determined to run the Repp boys out of business for their "meddlesome interference."

As we drove around with Charley in his "big six" he pointed out one of those orchards that was financed and operated by the whisky crowd, but it did not look as thrifty and as fine by a long way as the Repp orchards. "But," said Charley Repp, "it looks to me since the war started as if they will have to get out of the saloon business and raise fruit, and I am glad of it. I will help them all I can."

That is genial Charley Repp all over.

Albert Repp's flower-garden next to his residence. In the background is one of the numerous apple-orchards in this 5000-acre tract of fruit-growing.

Competition from the liquor crowd—that is the least of his troubles. Any one who can beat him in the fruit business is welcome.

By the way, Albert Repp got after some of the bums and toughs in their native town lately. He was so active and successful in his work that he made life miserable for them. When it came time for him to go to Florida to look after the cucumber business he left. Then the bums and toughs made up their mind they would tackle the younger brother, for they must get even. So they began one night to throw brickbats and fire guns at Charley Repp's house, smashing in the windows and doing damage generally. Charley said he would not have cared had it not been for his wife. "But," said he, "when I know my conscience is clear, and have tried to do my duty, I do not care what these fellows may do or say. I shall go right on raising more and better fruit; and if they keep on raising hell, I'll see whether there is a God in Israel."

As he said this his genial smile changed to a look of determination that meant that neither he nor his brother could be intimidated by mere brickbats, any more than the old father could be by early defeats in fruit-raising. The Repps are just clear grit.

BREED FROM THE BEST

Every Honey-producer Should be a Queen-breeder as Well. How to Make the Selection

By Dr. C. C. Miller

AFTER a longer experience in beekeeping than falls to the lot of most men I had settled down upon two points as the most important things to be urged upon beekeepers, and especially beginners, that I could glean from my whole experience. The first was that improvement of bees should not be left to a few, but that *every* beekeeper should make it his business, his life-business, to improve his stock. The second was that each beekeeper should adopt the slogan, "Breed from the best."

In order to carry out this scheme I have urged that careful tally should be kept of the performance of each colony, especially the amount of honey secured from each, due allowance being made for any advantage or disadvantage any colony might have labored under. For example, if two colonies were about equal in surplus, and in the previous spring a comb of brood had been taken from one colony and given to the other, then the advantage should be charged up to the one colony, and the other colony should have credit for its disadvantage.

Having thus a record of the standing of each colony, two ways of proceeding are open for the season's queen-rearing. One way is to select for breeders those queens which are a little better than the average, on the ground that advance, if slower, will be surer; the other way being to breed from those colonies which have the very highest rating. In my own practice I have followed the latter plan; and, not having tried the other, I do not know which is better.

Now, however, I am confronted with the question whether there may not be another way that is better than either of these. On page 27 of GLEANINGS for January, 1917, appears an article headed "Fallacies in Breeding," with the sub-head "Raising Queens from the Best Honey-producing Colony Not Always the Best Policy in the End." Taking those two headings together, it seems we are to understand that it is a fallacy to rear queens from the colony that gives the most surplus, or at least that it is not always the right thing to do.

When a man like Geo. W. Phillips says anything about queen-rearing, his word commands attention, since his views are based on the experience of rearing thousands of queens. There is nothing in what he says to militate against the idea that *every* beekeeper should strive for improvement, with the motto "Breed from the best," for he speaks with evident approval of "earnest efforts to achieve those finer strains of stock for which all bee-breeders strive," and when speaking of variations in bees he says: "Right here is the queen-breeder's chance. By carefully selecting those queens whose colonies show desirable qualifications he may greatly assist nature in giving the desirable traits survival value." The only point, then, in which there is question as to the correctness of my propaganda is that one of "carefully selecting" the right queen or queens to breed from.

If it isn't the right way to select always the queen whose colony does the best work, what is the right way to select? With all my heart I wish Mr. Phillips had given a

full and explicit answer as to how that is done. Unfortunately he has not done so, being satisfied to give us "a few fundamental biological laws," the knowledge of which I am afraid is sadly lacking, and in giving them Mr. Phillips has done a real service.

The matter is one of such immense importance that I may be allowed to do the best I can at giving an answer, trusting to Mr. Phillips or some one else to make any emendations needed. For that matter I should like to see the matter fully discussed without any reference to anything I may say.

At the outset, in trying to follow Mr. Phillips' teachings I find a difficulty in his classification. He says: "There are two kinds of people who purchase queens: those who buy for breeding, and those who buy yearly for honey-gathering; just possibly it might be a good thing if they were divided into those two classes. As a matter of fact I don't believe they are. I doubt if one beekeeper in fifty of those who buy queens buys them yearly with no thought of rearing any queens himself. I know for certain of only one such, and he's a man of high standing as a honey-producer.

But why limit our consideration to queens that are *bought?* In comparison with the rest of queens in existence they are few indeed.

I suppose that the great majority of beekeepers rear queens having in mind the honey to be secured from each, with perhaps little thought of improvement of stock. My idea is that, with the exception of that small class who buy all their queens yearly, *every* beekeeper should strive for improvement, even if he never buys nor sells a queen. In other words, every honey-producer should be a breeder as well; otherwise he'll get left in the long run in the matter of crops. The practical question now is, how shall he select the queens from which he breeds?

We are told that we may have a queen, say we call her A, of poor lineage, but so well reared that she gives a big surplus. Another, B, of very superior stock, is so handicapped in some way that she gives only half the surplus A does; but if she had had the same chance as A she would have excelled A in surplus. Clearly B is the better queen to breed from. But how are we going to select her? I don't know. Mr. Phillips doesn't tell us.

To be sure, I can think of a case in which there would be no difficulty. A might be the best in an apiary where all were scrubs and B a queen, or an immediate descendant of a queen of best quality obtained from a reliable breeder, in which case, no matter how much B should fall short of A in the amount of stores, B should be the one to breed from. And, in general, it may be said a queen bought for the improvement of stock can hardly be fairly judged by the amount of surplus she yields, since her journey in the mails and the possible shock of introduction may leave her incapable of showing how good blood she really possesses.

Such cases, however, are exceptional. Let us get back to the usual, the man with 25, 50, or more colonies, whose queens are reared in his own apiary. The important thing, just now, is to advise him how to select the queen or queens from which he shall breed. Suppose that A has given him the biggest yield. This, as already intimated, after taking into account any known advantages or disadvantages, such as taking or giving brood or bees at the time of building up. But suppose another queen, B, if she had had the same chance as A, would have excelled. Then certainly it is better to breed from B than from A. But how is the beekeeper to know that, given the same chance, B would have stored more than A? Can he properly estimate what should be credited to the queen on the score of her handicaps? As such handicaps, Mr. Phillips mentions old age, the loss of a leg, and poor nutrition in the larval stage. The matter of old age hardly presents any difficulty, for the old queen's record that she made before she was old still stands to her credit or discredit. I may remark in passing that one of my very best yielders last year, 1916, had a queen reared in 1913. You may rest assured that if she is still alive in the summer of 1917 her age will not be counted against her.

If a queen is minus a leg, whether from birth or by accident, how is that handicap to be estimated? I don't know how we can tell. Possibly it is a very serious handicap in some cases, yet I've had five-legged queens that were excellent layers. But I know of no way of telling by looking at the place where the missing leg ought to be how much better she would have laid, or whether at all better, if she had had another leg.

If B's smaller surplus is due to improper larval nourishment, how much are we to tally for that? The lack of proper nourishment may have been little or great, and it's such an intangible thing that I for one give it up.

Perhaps it may not seem presumptuous in

me to say what I would advise the owner of the two queens, A and B. It would be something like this: "You can't tell very much about B as to just what she would have done if she had had the best of chances, and if I were you I think I would leave her altogether out of the running. If A has given you a bigger surplus than any other in the apiary, it's a pretty safe guess that she's a better queen than the average; and this being the case it follows that breeding from her must raise the average; and if you keep this up year after year there will be constant improvement of stock so long as you find one queen better than the others."

If that advice is not good, please tell us what is wrong about it, and be sure to tell us what advice would be better.

I think I hear some one say: "It gives me a sort of uneasy feeling to think there may be a queen in my apiary handicapped by bad rearing that would be better to breed from than the one I am now using. If there is one such, there may be many. If you can't spot them, may be some one else can."

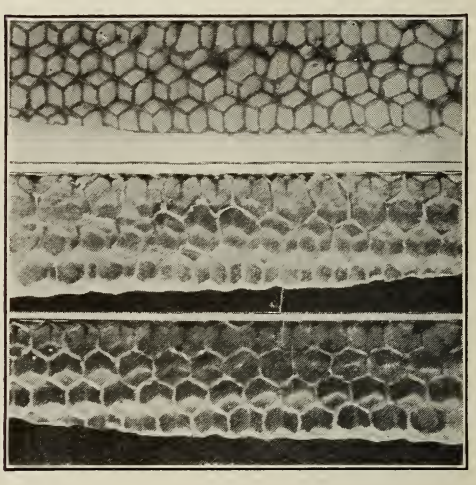
Whether there be any cause for uneasiness depends upon what has been done. If you are in the habit of having queen-cells reared in nuclei or weak colonies, or at a time when little or no honey was to be had, then you are sure to have a lot of poorly reared queens, altho they may be of excellent blood. But up-to-date beekeepers don't rear queens in that way. There is no excuse for a beekeeper to have cells reared in anything but strong colonies at a time when forage is abundant; and when that is done, how can there be poorly reared queens? So it is in the power of the beekeeper to have none but well-reared queens; and that being the case, it seems to me the right way for him to rate his queens is by the amount of honey stored by each.

One reason why I believe in that way is because of what it has done for me. For years I have followed the plan of keeping tally of the yield of each colony in order to breed from the best yielders, and my average per colony has gradually increased until it is three times what it was. Years ago lean years were in the majority, some years not only giving no surplus but obliging me to buy sugar for winter stores in order to keep my colonies alive. For some years I have had no interest in the price of sugar, the bees not only finding their own stores but giving me more or less surplus as well, with no year of entire failure. Some of the difference, I think, is due to improvement of pasturage; some of it, no doubt, to better management; but I think it is due in the main to improvement in stock caused by selecting as breeders the queens of colonies giving the largest yields.

If I am wrong in my views, I shall be exceedingly thankful to any one who will set me right. Until then I don't believe I can render a greater service to beginners than to urge their adoption of the slogan, "Breed from the best," and to count those best that give biggest yields.

Drone-cells One Side, Worker the Other

Burdett Hassett writes: "I have certainly seen several cases, here in Virginia, of drone-cells on one side and worker-cells on the other, of *natural comb*—not built on foundation at all. A. Tschoeberle writes that he had a small patch of drone brood on one side and worker brood on the other, and it was built on foundation.



Drone-cells on one side of a comb, worker on the other. The upper view is a transparent one, look-right thru; the middle view shows the drone side, and the lower the worker.

And now comes by mail a bulky parcel from Allen Latham—a section of honey. I found drone-cells on one side and worker-cells on the other. Curious to know about the base, I sliced off both sides and washed the honey off the septum. Isn't it the most "impossible" thing you ever saw? Looking thru it you will see natural base in a few cells, but in most of them the cells of one side are entirely independent of the other, built any old way, regardless. I didn't suppose bees could be induced to do such a thing. After this I'll hardly dispute anything—done by Allen Latham's bees.

C. C. Miller.

CAN THIS BE DONE?

Continued Cold Weather Causes Bees to Destroy the Queen-cells

By the Editors

AFTER the experiment recorded in the last issue with the virgins from the chilled cells, we at once grafted a large number of cells so that the experiment for the first time might be given a good fair test. On account of the distance from Medina to this large greenhouse where the mating experiment is under way we decided to start this graft in our queen-rearing yard here at Medina. The weather at that time in April was ideal, bees flying every day and all day long; and on account of the greater convenience, therefore, we felt this to be the best plan, all things considered.

The unexpected happened, however, as it sometimes does. Instead of a June atmosphere with drones flying and conditions normal for summer time as at the time the graft was started, the weather suddenly turned cold, and for several weeks we had March weather. In fact, conditions at Medina were no exception to those in the entire northern part of the country—there were days at a time when the bees could not fly. The queen-cells that we were caring for were destroyed of course. Much to our disappointment, therefore, there are no new developments in the mating experiment to report this month. When so much is at stake we are sorry that so many unforeseen difficulties arose.

The long delay, however, is not without its compensations, for we have had the privilege of making a most interesting study of pollination.

The company owning this large building also own a great many other greenhouses, some of them nearly as long but none of them as high, the roofs being of the familiar M type. The manager of the whole series of buildings gives it as his opinion that a blossom must be visited not once but many times in order to be thoroly pollinated. In the smaller buildings he has found it necessary to have at least one colony of bees in each aisle, for, altho there is no wall between each part of the M roof, the cucumbers grow so thickly that the bees do not readily go from one roof to another, in spite of the fact that they are so close together. In the small buildings entirely too large a proportion of the cucumbers are culls, as shown in the illustrations. The one cucumber at the left, probably because the blossom was very prominent, was visited time after time by the bees with the result that the cucumber is splendidly developed, uniform, and symmetrical. The two others close by are examples of malformation caused by incomplete pollination.

One perfectly developed cucumber and two culls—the culls being the result of incomplete pollination.

In the large building where the glass roof is so high, and where the cucumbers are growing in one unbroken vast field, the culls are the exception rather than the rule. In fact, they are very rare. The bees in the hives located above the vines have as good a chance at one blossom as at another and the work of pollinating is far more consistently and thoroly done. In the smaller buildings, more bees are required, proportionately, and even then the percentage of culls is greater than it should be.

Conversations with Doolittle

"How can I get the bees started at work in the sections? Sometimes it is well into the main flow of nectar before a part of my colonies store in the sections, while other colonies go to work at the beginning of the flow and keep steadily storing till the end of the season."

This is a question which every beginner, sooner or later, is likely to ask. Having each colony start work in the sections at the very beginning of the main honey harvest is an idea well worth looking after. Some most excellent beekeepers treat this phase of beekeeping very lightly, and incline to make light of the one who does not succeed. "If the bees get plenty of honey they will go to work in the sections; if they don't, they won't." This I once heard from the lips of an excellent apiarist in reply to such a question at a beekeepers' convention.

I know that locality may have a bearing, and the same may be said in regard to the variety of bees employed. And the way the season opens has much to do with this matter. If there is a steady but not profuse flow of nectar from early spring up to the beginning of the clover harvest, just enough to keep the bees breeding nicely, and then in due time the clover comes on with a rush, just as the hives are full of bees and brood, there will be little difficulty in getting the bees to go into the sections provided the supers were on the hives a week or so before this rush comes. But suppose the season begins with a light flow which *gradually* increases — no sudden jump, as there often is at the opening of clover—the probabilities are that some of the colonies, very likely very many of them, if they are black bees or dark hybrids, will begin preparations for swarming. If the energies and aspirations of the bees could have been turned sectionward as soon as there was sufficient honey brought in, more than to supply the brood, it might have made all the difference between a good crop and a very small one.

Then some colonies seem very loath to store honey except close to the brood. The bees will crowd the very last cell in the brood-nest before they will build comb in the supers, and in some instances before they will draw out foundation when full sheets are used in the sections. I have had good success with such colonies by taking a wide frame of sections from any colony working in supers and carrying it, bees and all, to the one not so working, and exchanging this well-under-way wide frame for one not commenced upon at all. Twenty-four hours later the whole super is apt to be quite well filled with bees, and each two rows of sections on either side of the one given having comb-building going on, or the foundation in the section drawn out and quite a little honey deposited therein.

Now, while this plan will work successfully without materially injuring the prospects of any colony which has already commenced work in the sections, and is the best of anything I know of where sections full of comb are not on hand, yet it entails quite a lot of extra labor right at a time when such labor can hardly be spared from more necessary work in the apiary. For this reason, in August and September of the year before I begin preparing for starting the bees at work in the sections. In my experience of over forty-five years I have found that nothing so quickly and surely lures the bees into the sections as do nice empty combs; and in most sections of our country these nice combs can be secured to the best advantage during the forty days between August 20 and September 30, at which time buckwheat and fall flowers are giving a moderate yield of nectar. By using very thin section foundation, and filling each section with it, leaving only about one-fourth of an inch at the bottom, and setting supers of such sections on the hives at the time named, the bees will enter them and draw out the foundation. Then, before any great amount of honey has been stored in the cells thus drawn, these supers are taken off and other supers put on. In this way the bees can be worked profitably for empty combs in the sections while plenty of stores are secured below for the winter.

Of course, where one has a market at good prices for this dark honey these sections may be left on for completion; but with me the price of dark honey is so low, in accordance with fancy white, that securing these nice white combs for use in the clover harvest gives a greater profit in the end; for a super of such combs, kept over from the previous season, is much more valuable than a super of finished sections containing dark or fall honey—simply because it will so quickly and surely start the bees to working in the sections in the

FROM THE FIELD OF EXPERIENCE

very beginning of the flow from clover or basswood. Of course, it is not necessary to have these drawn combs in every super; but for the best success the first super put on should have them if possible. If not possible, then the first super should have the row of sections at each outside, and that in the middle filled with such drawn combs. After once in the supers the bees will generally continue to the end of the season.

Borodino, N. Y. G. M. DOOLITTLE.

Letters from a Beekeeper's Wife

Home, June 1, 1917.

Dear Sis:

If it has been raining as much and as long with you as it has with us, I pity you! I wonder if the pent-up energy of your three boys would equal that of my one boy and a man! Billy is always a problem during a rainy spell, but this time I've had Rob on my hands as well, and it has been a great relief to have the sun come out and stay out. Ten days of steady drip with only short recesses made Rob like a caged lion; he was so wild to be out in the apiaries, and to have the bees flying again, that he could scarcely contain himself. He was extremely busy every day, however, for he knew that these rains keep the bees in the hives, and that swarming would be bad just as soon as they could fly. Such an interruption as this in the work is hard to bear. It is one of the uncertainties of a beekeeper's life that has to be counted upon.

No man who is not a good gambler should ever be a beekeeper. You know they all always figure on a "bumper crop," but there are so many factors upon which the crop depends that it really is a gambler's chance. A beekeeper can control his bees to a certain extent—have them free from disease and in good condition for gathering—but he cannot control the clover crop, nor the flow of nectar in the clover, nor the weather.

Rob is really philosophical, for he says that *if* the weather holds from now on we will have a bumper crop this year anyhow. The rains made a fine growth of clover and I never saw so much of it.

I wish your boys had been here to see the swarms we had one day right after the rainy spell. It was the worst swarming time we have had for years, and the fun has just begun! This swarming happened here in the home apiary. One colony started and the others seemed to catch the swarm spirit and followed suit. Such a time as we had hiving them, with five swarms in the air at a time! We caught all but one with an unclipped queen that lodged high in the big oak that the swing is on. Rob couldn't get to it, and in despair resorted to throwing stones, hoping to dislodge it so that it might settle again in a more convenient spot. Instead it flew off to the woods and we had our hands so full that we couldn't follow it.

Six swarms settled one after the other on the little pear tree in the middle of the yard, which makes Rob more firm than ever in his conviction that it is odor which attracts bees in swarming. He thinks the odor left on the tree by one swarm attracts another, and that the swarm odor in the yard excites bees from other colonies to swarm.

Rob always feels discouraged if swarming sets in, altho he knows that it cannot always be controlled. He seems to think he is to blame and has failed in his beekeeping practice. I told him, in an effort to cheer him, that bees are still wild animals, and if they have not been domesticated in all these centuries, he needn't think he can do it. He replied impatiently that he does not expect to tame them, but he does think it is about time that scientists found out the cause of swarming so that there would be a sound basis for methods of control. At that, Bill spoke up and said. "Why do you wait for somebody else, Daddy? you could find out for yourself." Rob looked thoughtful, and a little shamefaced, as he replied. "Billie, I believe you are right. We can't expect the men in the laboratory to find out these things. It is the men who know bees thoroly that will have to learn scientific experimenting and do it themselves."

So do not be surprised if we set up a laboratory next! We shall not look for you until we hear that Howard is better. Poor little chap! I do hope that it is not whooping cough. Our fresh country air will do him lots of good, I feel sure. With love to all of you, Your loving sister,

Mary.

Concrete Workshop and Honey-House

I have a concrete honey-house with a bee-cellar underneath and a workshop on the north side, where I make hives and brood-frames. I have a Barnes saw-table that is

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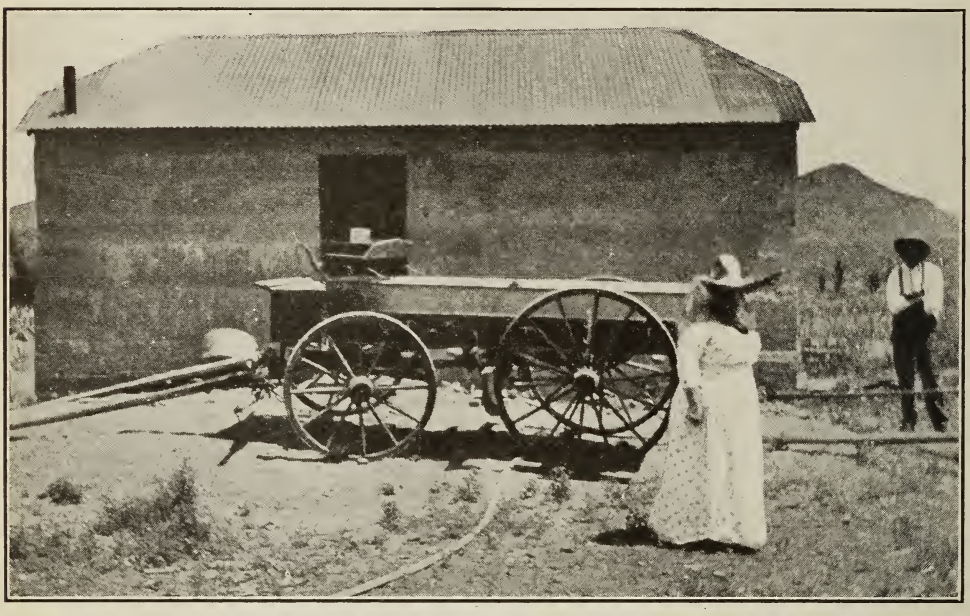


Concrete honey-house and work-shop belonging to T. J. Riggs, Wilcox, Ariz.

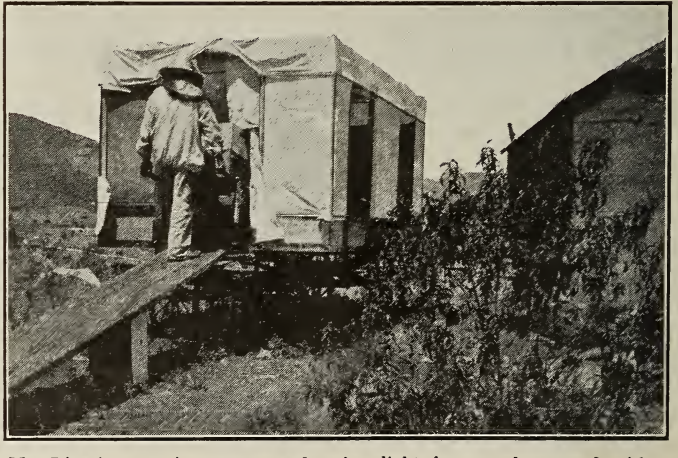
run by my little extracting-engine. On the north side of the building at the driveway the wagonbed is level with the platform, so that the loading of the honey is very easy—in fact, the moving of the honey all the way to town is downhill.

For extracting at my five different apiaries I have a portable room built on a wagon. This is very light, as the body is made of thin strips of wood covered with canvas. A wide plank leads from the ground up on to the wagon, and the honey is run on the wheelbarrow right thru the hanging canvas door. When we move to another yard this wide plank is pushed in the door of the extracting-wagon and is thus carried right along with it.

I also have what I call a tank-wagon, which is stopped on low ground, a little in front of the extracting-wagon, and the honey runs thru a pipe from the extracting-wagon to the tank.

I have 400 colonies of bees in five apiaries. Two experienced men with the outfit can extract from 100 colonies a day.

Wilcox, Ariz. T. J. RIGGS.



Mr. Riggs' extracting-wagon made of a light framework covered with canvas and screen.

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Fruit and Vegetables Canned in Honey

To use honey in canning fruit and vegetables, to be perfectly successful you must choose only sound vegetables and fruit. It is false economy to purchase those on the verge of decay, even at greatly reduced prices. The fruit should be barely ripe—never over-ripe—and the sooner it is taken from the tree or garden the better.

Some prefer to put the fruit or vegetables in the jars with the syrup, and cook in the boiler with a perforated rest under them; but I always cook mine in the syrup and can.

To can cherries, plums, and peaches, take half their weight in honey and add water enough to make a good syrup. Then, after it comes to a boil, drop in the fruit and boil about ten minutes. Skim carefully all scum that arises. All kinds of small fruit can be canned the same way.

The honey is wheeled, four supers at a time, up a wide plank and thru a canvas curtain.

To can corn, use two quarts; cut off the ear; half pint of honey; one pint of water; four even tablespoonfuls of salt; boil thirty minutes, then seal.

To can tomatoes, use three quarts; one pint of honey; three tablespoonfuls of salt; boil thirty minutes and seal.

Be sure to skim carefully all fruit and vegetables.

Topeka, Kan. ELIZABETH LITTLE.

[As a supplement to the above article we are reprinting, by request, an article on this same subject which appeared on page 463 of GLEANINGS for 1910.—ED.]

There is no mystery or luck about the successful canning of fruit. If properly done, failure is almost out of the question. The fruits or vegetables should be barely ripe, never over-ripe, perfect of their kind, or at least with no fermentation started in them, and the sooner they are taken from tree or garden and sealed up in jars the better. New fruit-jars are best put over the fire in cold water to cover them, brought slowly to a boil, and slowly cooled: then they will stand greater extremes of heat and cold.

If particular about keeping the fruit in shape, or where a large amount is to be done at once, it is usually put uncooked into the jars and covered with the honey. The jars are then set into a larger boiler with a perforated rest under them to keep them from the bottom. Fill the boiler with cold water nearly to the shoulders of the jars. Screw the tops on rather loosely; put the cover on the boiler and bring to a boil. Both fruit and vegetables can be done up in this way. As a rule the latter is more difficult to keep than fruit, and require much longer cooking.

Twelve quarts of raspberries require two quarts of honey. Put two quarts of the fruit in the preserving-kettle and heat slowly on the stove. Crush the berries with a wooden vegetable-masher and spread a square of cheese-cloth over a bowl and turn the crushed berries and juice into it. Press out the juice and turn it into the preserving-kettle. Add two quarts of honey and put it on the stove. When the syrup begins to boil, add the remaining ten quarts of berries. Let them heat slowly. Boil ten minutes, counting from the time they begin to bubble. Skim well while boiling. Put in cans and seal.

Of cherries, take six quarts, 1½ quarts of honey. Measure the cherries after the stones have been removed. Pit them or not as you please. If you pit them, be careful to save all the juice. Put the honey in the preserving-kettle over the fire until it simmers. Put in the cherries and heat slowly to the boiling-point. Boil ten minutes, skimming carefully.

Of pears, plums, and peaches, you take the weight of the fruit in honey. Plums should boil about fifteen minutes; peaches and pears, from twenty to thirty.

Blackberries are put up same as raspberries.

Of strawberries, take four quarts of fruit and 1½ quarts of honey. Boil ten minutes. From the time it begins to boil, skim well.

Of rhubarb, take equal weight of fruit and honey. Boil ten minutes.

Of apples, take two quarts of fruit and one pint

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of honey and half a pint of water. Boil twenty minutes.

Of corn, take two quarts, cut off the ear; half a pint of honey, one pint of water, four even tablespoonfuls of salt; boil twenty or thirty minutes, then put into jars or bottles.

Of tomatoes, take three quarts, one pint of honey, three tablespoonfuls of salt; boil the same as corn.

Of corn and tomatoes, take two quarts of corn, two quarts of tomatoes, one and a half pints of honey, half a pint of water, five even tablespoonfuls of salt; boil thirty minutes, then seal.

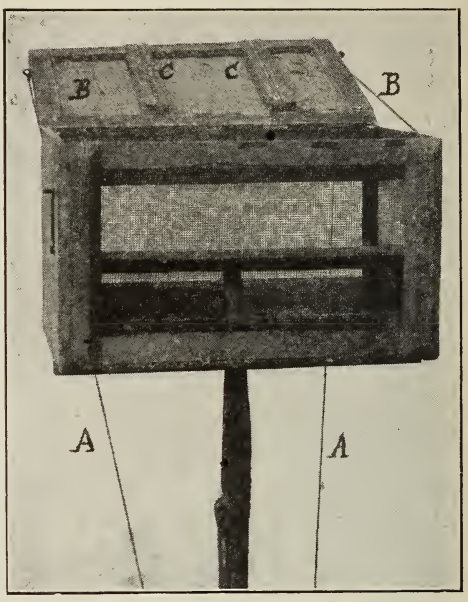
Grape, raspberry, blackberry, cherry, plum, and peach juices are made as follows: One quart of juice, one pint of honey, boil from ten to twenty minutes.

MRS. H. K. BEARD.

A Large Swarm-catcher

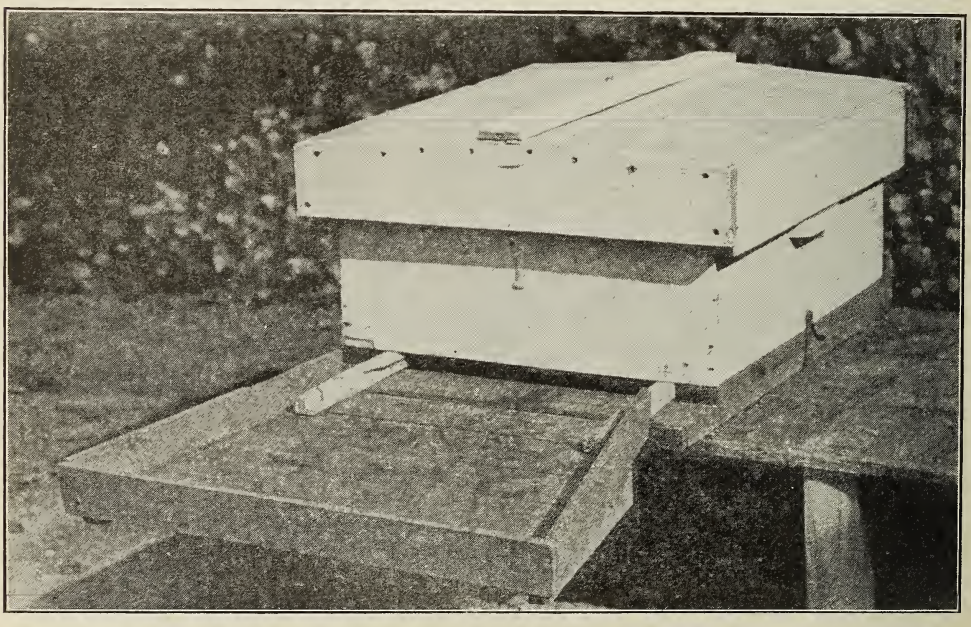
An objection often raised against the Manum swarm-catcher is that it is too small. It is large enough to get about a third of a swarm, and the rest of the bees will follow only when the queen is among those inside the cage. Now, the queen being the first to settle, she is usually in the upper part of the swarm; and as the Manum swarm-catcher is nearly always filled with the lower half of a good swarm the queen is generally not caught unless the swarm is a very small one.

For these reasons I take a large light box, as shown in the illustration. Inside, about 3 inches above the bottom, I have a board fixed with a hole in the center to correspond with another hole in the bottom, the pole being stuck thru both holes and thus held firmly.



Hamelberg's swarm-catcher.

The lid is automatically closed by means of a couple of rubber bands. A small cleat under the hinges keeps the lid from going



The swarm-board in position.

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open too far. I hold the lid open until the bees are in, by means of a string.

When catching a swarm I push the box right under it, keeping the lid open by holding the string, and give the branch on which the swarm has clustered a vigorous push. The swarm having dropped in the box I lower it a little, at the same time letting go of the string, when the lid will close instantly, because of the rubber bands. I then fasten the lid securely with a hook and eye and put the device in the shadow near the place where the swarm settled and all the flying bees will quickly unite with it.

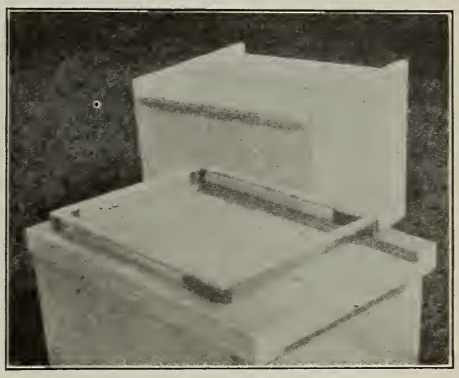
When hiving a swarm I do not like to dump the bees in front of the hive on a cloth or newspaper, for, on account of the holes and wrinkles, the bees do not have a smooth level place to walk over. For this reason I made a tray of thin boards with a rim about three inches high on three sides of it. Two projections on the narrower open side permit the tray to be pushed in the entrance and held right in position. The weight of the bees, when dumped on it, lowers the board a little, but this makes no difference; in fact, bees always prefer running upward, so the drop in the board is just right. There are never any stragglers left behind; and in a couple of minutes the swarm-board can be taken away. Whether it is to the credit of this way of hiving swarms I do not know; but for the last ten years, since I have been using this tray, I have never had a swarm desert its hive.

Soest, Holland. J. H. J. HAMELBERG.

Screened Ventilation at the Bottom to Control Swarming

Some years bees seem to put most of their energy into brood-rearing and swarming rather than in gathering honey. By experiment I have found that it is impossible to keep a hive and supers too warm, so long as the bees are given enough ventilation at the bottom of the hive and sufficient super room during the swarming season. There is nothing equal to prevention as a remedy for swarming; but if extra ventilation, for instance, is provided too late, after the bees have already made their plans to swarm, it is almost impossible to prevent them from swarming. In the method that I shall here describe, I have been able to prevent swarming entirely, even tho I run for comb honey.

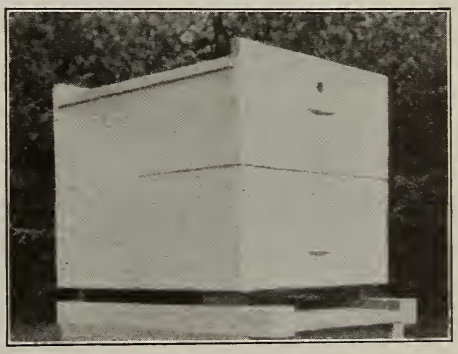
When my bees need one super I give them two—that is, I provide one super; but when they are working well in the one I put another on top for extra room rather than to wait until the bees really need the extra one.



The ventilator frame showing the openings at the sides.

I have tried providing extra ventilation at the bottom by raising the hives on blocks, as recommended by some, but I will never do it again. I think all the bees in town were in the hive in a very short time on account of the entrance all around.

There is no danger of robbing if a screen is used to close the openings at the side. I have frames the same dimensions as the hive-floors, a solid piece at the back, 1 inch high, and only corner blocks at the front with ¼-inch strip tacked on top of all to hold the pieces in place, and to which to tack the screens. When the screens are



The screened ventilator in position.

tacked to this strip there is a bee-tight one-inch space along each side of the hive, providing that much extra ventilation, but without chance for the bees to fly from the sides. The hive is raised from the floor,

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General view of D. J. Blocher's apiary, Pearl City, Ill. The grass is kept mowed all summer with a lawn-mower.

this frame set on, and then the hive is replaced. With this screen and plenty of super room I never worry about swarming. The bees seem to go up into the supers at night rather than to hang out on the front of the hive, as is usually the case; and if the supers are kept warm enough they stay there and work instead of crowding the brood-frames and planning to swarm. In some localities, when honey is always coming in freely, unscreened ventilation at the sides may work all right, but I shall not try it again in my locality.

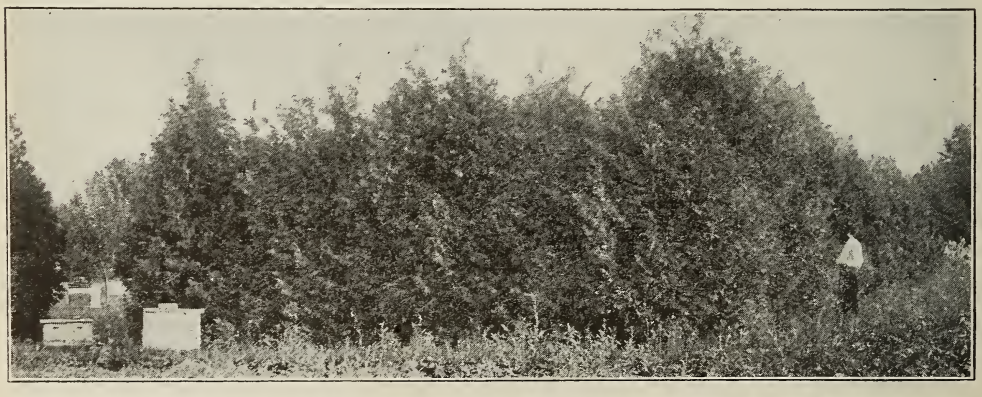
At certain times the bees try to close the screens with propolis. It is well to have a few extra ventilators on hand to exchange while cleaning those that are clogged up. The screens may be cleaned up by dipping in hot water or pouring hot water over them. The propolis comes off readily with a knife.

Hartford, Conn. G. T. WHITTEN.

What to Do with Swarms Galore

The season of 1916 was the worst I ever experienced for swarms. Up to the latter part of June it was cold and wet, then rains became less frequent and the weather warmer. About the middle of the month swarming began in earnest. There was much drifting, resulting in the doubling-up of many swarms, some of the largest of which would abscond with the least provocation. A large percentage refused to settle down after being hived. New swarms did nothing but swarm out again.

We quit returning new swarms to the parent location and put them in hives with only narrow strips of foundation in the frames. By not hiving on the parent location the swarm was not increased in size nor was the parent colony diminished, but we had to do it. We supplied lots of super



Evergreen windbreak planted on the north and west of the apiary, fifteen years ago.

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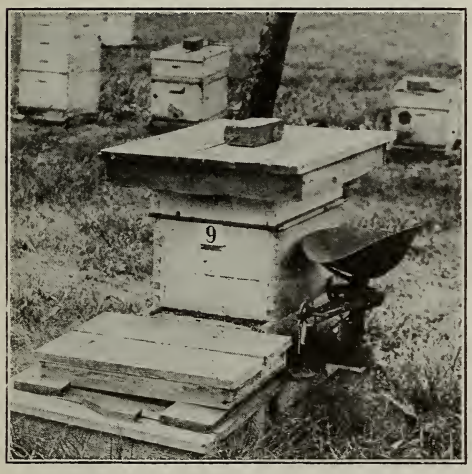
room, both for the newly hived swarms and the parent colony, and gave plenty of upward ventilation. We trapped the queens of the new swarms. Cutting the cells in the parent hive did not stop the swarming except after much fussing as the season progressed.

The alsike harvest was then beginning. Alsike has been our main source of honey in recent years, as white clover has failed for about twelve years. When the alsike is cut our hopes are gone. Very little was accomplished by any of our colonies until the latter part of June, and our hopes vanished. Two wet summers, however, had



A hive on scales is a positive necessity in any honey-producing yard. If the one colony does not represent the average in the yard there should be two.

brought out white clover everywhere in the pasture fields, and by July the rains had ceased and good hot weather came. The bees then quieted down and worked again in earnest on the white clover. This continued until the hot July sun killed the clover.

I would never think of conducting a honey-house without a scale hive. It is the pulse of the whole situation. Each day at sunset we know what was brought in; and if the unexpected happens in the field the beekeeper knows it and can act accordingly. The scale hive is our guide in putting on supers and restricting them as the season closes.

In hiving bees we take the shortest cuts possible. We make no noise while the bees are swarming—simply go about our work until they are on the wing. When they have clustered we are ready to do the hiving. We set the hive as close to the cluster as possible, and give the cluster a gentle jolt. This is easily done where the bees cluster low. If they are high in the air we cut off the limb, provided it does not damage the tree, and shake it gently in front of the hive.

Our bees sometimes cluster in such an out-of-the-way place as the trunk of a tree or the bottom of a currant bush. We put the hive as near to these as we can get it and then blow smoke from above, driving the bees down toward the hive until we get them on the run or on the wing. Brushing in such a place simply aggravates the situation.

If the bees are clustered on a limb that we do not want to cut, we shake it and hold a green bushy one near by and keep them off the first limb by shaking and smoking until they alight on the limb we supplied. Rather than cut a limb, fix up a scaffold, or use a basket, I have dropped swarms from quite a distance in front of the hive, and, by smoking the limb where the cluster was, have caused the remainder of the bees

Two swarms that clustered together on the limbs of a small cherry-tree, making it necessary to tie the limbs for support.

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to drop to the hive in their flight and enter. We often do this where they alight on the main part of a branch that can not be handled like a small one that can be shaken into a basket.

Before bees can be induced to enter a hive from a distant lodging-place it is necessary to get the bulk of them at the entrance; and if the queen happens to be there, all the better. Bees can just as easily locate part of their cluster in front of a hive from a distance as they can in any other location.

I no longer divide large swarms that have gone together, for the secret of success in

Some of D. J. Blocher's comb-honey hives at the close of the season. No. 2 swarmed June 24 and was hived in a 10-frame hive. No. 3 swarmed June 30, also hived in a 10-frame hive. No. 4 did not swarm. Nos. 5 and 6 were shaken into 8-frame hives on June 15.

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quality and quantity of honey and the least expense lies in these mighty swarms. We hive all the bees in one hive, therefore, giving plenty of super room and upward ventilation. The new swarms are returned to the parent location. The parent colonies are taken elsewhere to reduce the chances of more swarming; and if such colonies are very strong, supers are supplied for comb honey. No one need to be afraid to put supers over parent hives, as all vacant space below will be filled first.

We frequently double up parent colonies to reduce expenses and increase the honey crop.

Pearl City, Ill. D. J. BLOCHER.

Bees, Boys, and War

Among the many efforts at "Conservation of resources" induced by the war, the increase of honey production by amateur beekeepers should by no means be overlooked. It is said that honey is to some degree taking the place of sugar in England, and that the Russian Government is helping to introduce scientific beekeeping methods in Russia. Boys and girls in America are everywhere enlisting in an "army of production" to raise fruit, vegetables, and poultry, and to help the farmers care for their crops. It is a most excellent movement, tending to health, wholesome interests, and practical efficiency; and no branch of husbandry is more likely to engage their enthusiasm than the care of bees.

Many farms that have only two or three neglected old-fashioned hives might produce honey in abundance if these were turned over to the son or daughter to be reorganized; and innumerable country and suburban places that have no bees should introduce them forthwith. It is not necessary that the owner should raise alsike or buckwheat. Bees range two or three miles from home, and in many places the roadsides alone furnish a vast amount of beepasturage, with their linden and locust trees, sumacs, wild raspberries, white clover, and goldenrod. With sugar at war prices, a few supers heavy with delicious home-grown sweets will be welcome next fall.

A boy of ten is old enough to be a valuable assistant in hiving the swarms and taking up the honey; and a year or two later he should be encouraged to invest in a hive, or be given a swarm of his own. His sister may do as well, or better, for many women succeed with this kind of "live-stock." Beekeeping encourages self-confidence, and stimulates habits of observation. It requires some pluck, deftness, intelligence, and watchfulness at certain seasons, but not that patience for monotonous labor that children have not. And bees are so amusing, and the hive is such a marvelous place! It does one good just to see the little ladies devoting themselves to the commonwealth; and a good treatise on apiculture, which is the prerequisite to beekeeping, is a capital introduction to biology and other sciences.

As for the established beekeepers, if every one would start an enterprising boy or girl in business with one of his early swarms he would be "doing his bit" to make his own town more nearly self-supporting. To increase our honey supply we need many enthusiastic amateurs. Backyard gardens should be supplemented by backyard beehives.

Redding, Ct. R. F. D.

How to Find what Hive the Swarm Came From

It is desirable to know just what hive a swarm issued from, so that attention may be given at once without the necessity of examining all the colonies in the yard. This is no light task when the hives are two and sometimes three and four stories high. Making increase by natural swarming is all right, especially for the apiarist who has but one yard. Moreover, there is real science in the proper swarming of bees, for it is the natural desire of the bees. They also work much better than when increase is made along unnatural lines.

If one of your colonies has swarmed, and you arrive soon after while the bees are still in the air, on examining the fronts of the hive you can tell by the number of bees crawling in the grass and gradually rising to join the swarm which hive a swarm came from. If you arrive too late to tell in this way, hive the swarm on one or two old combs; and when most of the bees are inside, brush off a cupful of bees hanging on the outside on to the ground in front of the hive. Then carry the hive away into a quiet shady place, and cover it with a sheet. Of course, be sure that you have the queen in the hive. In a few minutes the little

FROM THE FIELD OF EXPERIENCE

bunch of bees brushed off on the ground, seeking their queen, will rise in the air, hover about in search of her, and gradually return to the hive they came from. Whenever you see a nice little army of bees marching into a hive, fanning as they go, you have found the hive that originally cast the swarm. If it is in the middle of the day and the bees are very active in front of all hives, it will be difficult to tell, unless you dust some flour on the few bees brushed off on the ground.

Another way to tell which hive the swarm came from is to find the queen, put her in a cage and remove her, and the bees will then return to the hive they came from, provided no other swarm happened to be flying at the time. The first plan is the quickest, for it is not always possible to find the queen quickly; and, besides, there is then no increase, as the swarm goes back where it came from. Either plan will work when there is no other swarming going on in the yard. If other swarms are out, wait until about three in the afternoon when swarming is well over for the day. The dusting with flour is not always necessary but is helpful. I have found occasional bees with flour on their coats going into several different hives, which proves that individual bees from different hives join a swarm when they hear what is going on.

GEO. W. STRANGWAYS.

Elora, Ont., Canada.

Instantaneous Increase

One day I drove to one of my outyards intending to introduce a few queens. I found that one of the colonies that I had marked for requeening had relieved me of the job by superseding their queen, which left me with one queen that I had no place for. As many of the colonies were so strong that they could spare both brood and bees I decided to form a new colony, little thinking that by so doing I was stumbling on to a method of increase that I had often wished for—a method that would give me comb-builders, nurse bees, field bees, and a laying queen, the whole job being completed at one trip to the yard.

I placed the bottom-board and empty hive-body on a new stand with a cover and super cover near by. The entrance was plugged with grass, except a two-inch hole in the center. I then filled the hive-body with bees and brood from colonies that had plenty to spare; and, after putting on the cover, introduced the queen by the smoke method.

I returned to the yard after dinner; and because of the unusual amount of activity at the new colony my first thought was robbers, but I found the excitement was due to the young bees taking their playspell. Then I saw something else which is very unusual with artificial increase. Old bees were coming and going just as they do in any normal colony. My curiosity got the best of me; and, even tho I had just introduced a queen, I looked inside the hive. The queen was there doing business, and no one would have imagined that the colony had been made artificially less than six hours before.

With all other forms of artificial increase that I have any knowledge of, the old bees will return to the hive they were taken from, leaving the colony made up largely of young bees, too young to do field work. The only explanation I can offer why they do not do so with this plan is that they are taken from different colonies and are thoroly mixed up, and that they received so good a smoking when the queen is introduced that, when they are released, they mark the new location.

Before I left the yard I put on a super, and at my next trip I found the colony just as far advanced as any in the yard. Knowing full well that one trial does not prove the merits of any method I kept on trying, and the results were always the same. After repeated trials I found that the best time of the day to make the increase is in the early morning while the old bees are at home. In that way a better force of field bees is secured.

There is another factor that may have something to do with the success of this method. My queens are all raised and mated at my home yard; and when caged to be taken to the outyard I do not put in any escorts, neither do I provide any food, so the method of introducing that I use might be called a combination of the starvation and the smoke method. I have seen quite a number of unfavorable reports on the smoke method, but up to date I have had but one failure and then the fault was not with the method but with the man who was using it. I know that queens taken from one colony and put into another one inside of an hour are very easily accepted, but I have also

FROM THE FIELD OF EXPERIENCE

used the plan with queens that have been in the mail from two to five days.

Moorestown, N. J. J. M. DONALDSON.

No Swarming, tho the Bees in the Locality were Swarm-mad

Early in the spring I go thru my yards and see that all colonies have plenty of stores, enough to last four weeks. As soon as brood-rearing starts in earnest I spread the brood in the strongest colonies that I think can take care of it after it has been spread. Then I select the strongest colonies for comb-honey production and keep building up the rest for extracted honey.

As soon as the strongest colonies begin to be crowded, I take a ten-frame super, full depth, filled with full sheets of foundation; remove half of the brood and combs from a strong colony, shove all the brood to the center of the hive, leaving the queen below, and fill in the rest of the space with full sheets of foundation. I place the rest of the brood and combs in the center of the super and set this on top of the colony with a queen-excluder between. This I usually do about the first of May.

In about four weeks all the brood will have hatched in the super. Then I remove it and put two shallow comb-honey supers on the hive. I shake all the bees from the combs of the super removed, in front of the hive, then carry this super of combs to one of the hives intended for extracted honey. I put two or three combs of brood from this extracted-honey colony into the super above, replacing with empty combs below. If there is any tendency to swarm, this treatment certainly stops it. Furthermore, by this means I keep the strongest colonies busy drawing combs for the weaker colonies, while they are building up a working force.

By this time the white clover is beginning to yield nectar, and I have all colonies in good shape for the harvest. I have no further trouble with the swarming fever from those that are run for extracted honey; but I have to watch those run for comb honey and keep the bees provided with plenty of super room. I use full sheets of foundation in the sections and two bait sections for each super.

As the weather becomes sultry I raise the hives from the bottom-boards with cleats about half an inch thick, giving plenty of ventilation from below. That is a wonderful help in keeping down the swarming fever. Of course care must be used not to overdo the ventilation.

I have used this plan for two years and have never had any swarms, in spite of the fact that last year the bees in this locality seemed to be swarm-mad, some colonies swarming as often as four and even five times, and giving no surplus, while I secured an average of 100 pounds per colony. I aim to keep ahead of the bees at all times—in other words, to do something before the swarming fever gets started. I never cut cells, but at times I give bottom ventilation. If any cells appear I remove two or three frames of brood and replace with full sheets of foundation, using the brood to make increase or build up weak colonies if I happen to have any at that time.

Marion, Ill. D. PRIDE.

[At the conclusion of an experiment a beekeeper should consider whether the results are because of, in spite of, or incidental to the manipulation. He should also distinguish between cause and effect—of surrounding circumstances. Success in swarm prevention when all the bees in the locality are "swarm-mad" is a feather in any man's cap.—ED.]

The fact that G. A. Readshaw's apiary is located only about 40 feet from the sidewalk of a busy street of Sharon, Pa., doesn't prevent him from making a success of it—nor the bees from swarming.

STRAY STRAWS

Dr. C. C. Miller

YOU ASK, Mr. Editor, page 359, whether there is not danger of starting robbing by shoving a comb of honey into the big entrance under the brood-nest. I should be sorry to advise anything that would get a beginner into trouble; but really I can't think of any way of feeding less dangerous, even for a beginner. It takes only a fraction of the time it would to open the hive and hang the comb among the other combs, and that rapidity gives robbers less chance. Likely you think the naked comb on the floor will be unprotected. But immediately the entrance is closed all but a square inch or less, and by the time you have the entrance closed that comb of honey will be covered by bees the same as the other combs at the entrance. And it will surprise you how soon the honey from that comb will be carried up into the combs above if there is room for it there.

MRS. ALLEN, you want to know somewhat definitely, p. 376, at what stage of the season the first equalizing of brood occurs. A bit hard to answer. After the colonies have been on their stands long enough to have brood started in each, say about a week, a hasty examination is made the first flying day to see if any colony is queenless, and to note which colonies are weakest, and incidentally to see if any need feeding. Then the weakest colonies are newspapered over the queenless ones. Perhaps the best answer I can give as to the time when the first equalizing is done is to say whenever colonies are strong enough. That will be when the strongest have five or six brood each, and may be before fruit-bloom, or it may be near the close of fruit-bloom. You can't very well go wrong about the time if you *never reduce a colony below four brood.* There's no fixed rule as to amount of stores in spring, unless it be to crowd in all there's room for early, and not to allow any empty combs later.

ALLEN LATHAM, after years of experience with different substitutes for pollen, has come to the conclusion that cottonseed meal is the best he has tried. He has come to another conclusion that is rather startling —that is, that feeding such substitutes is a matter of no gain but distinct loss. If you read the two pages he has written about it, in the *Domestic Beekeeper,* page 172, you will see he makes out a strong case, giving actual experience. Briefly, there are two reasons for the harm: the weakening of the nurse-bees by the digestion of food unsuited to their digestive organs, and the forced activity of the bees when they should stay at home.

G. C. GREINER has been perhaps the strongest opponent of the use of full sheets of foundation in sections. He believed the quantity of honey might be thereby increased, but at the expense of quality. After many years of experience and much observation he is now thoroly convinced of his mistake, and recants in the most wholesouled manner (*American Bee Journal,* April, 129). He now thinks it a mistaken notion that sections with a natural base are superior, is converted "into a thoroly convinced full-sheet and bottom-starter advocate," and says of what he calls his former notion, "It has cost me tons of honey during the past decades."

"ALLEN LATHAM asserts that, in combat between a laying queen and a virgin, the virgin is *always* the winner because of her greater agility. Dr. Gates says this is not always so, and that he knows of instances where the fertile queen won. How is this?" —*American Bee Journal,* Jan., 1917, p. 13. It is not said that Dr. Gates saw the combat; and unless he or some one else did, there's no proof. If a strange virgin were introduced, the workers would take a hand, and the virgin come off second best. In a fair stand-up fight I should always expect to see the virgin the victor because of vigor; and yet in one case in a thousand I can imagine a white-livered virgin overcome by a red-blooded laying queen.

PROF. JOHN H. LOVELL has made a notable contribution in *American Bee Journal* for April, p. 115, to bee literature. He proposes the division of North America into 12 nectar or honey-plant regions, based on topography, climate, native vegetation, and the geographical distribution of honey-plants. State lines are utterly ignored; and it is interesting and instructive to study the map giving the 12 regions with accompanying details as to honey-plants to be found in each.

S. D. HOUSE says bees go further for strong-smelling blossoms, because these can naturally be scented further away, *American Bee Journal,* April, p. 121. Of course. By the same token they will also go further to blossoms on the windward side.

SIFTINGS

J. E. Crane

MAY is indeed the month of apple-blossom. Commencing in April in the South, it lasts till June in the far North. What could be more fitting than to give a picture of the beauty of blooming apple-trees in colors on the cover page of GLEANINGS for May? How true to nature, with the green grass and shadows below, the blue sky above, and the white and pink blooming trees between! I thought I could see two birds in the front tree, and it required no great stretch of imagination to hear the merry hum of the bees.

* * *

One of the neatest tools we have found recently is an electric wire-imbedder. It puts the wire right down in the center of the foundation and covers it with wax so you can hardly tell from which side it was imbedded. There may be others as good as this one put out by the Dadants, but I have not seen it.

* * *

I was much interested in E. T. Atwater's "Shaken-swarm plan perfected," as given on page 352, placing the brood-chamber over an empty one to prevent absconding. If it will work as well in other sections and in other hands it will remove one of the serious objections to the shaking plan of management.

* * *

At how low a temperature can combs be handled without injury to unsealed brood? Some claim it injures a colony even to lift one corner of the packing in early April. I find some beekeepers object to an inspector opening their hives unless the temperature is near 70°. It seems to me this is being over particular.

* * *

The article by Lewis P. Tanton, page 335, May, on destructive spraying, is open to criticism. While I agree with him that too early spraying might kill the pollen grains or the delicate organs of flowers, yet if delayed until the calyx closes and turns down it seems too late, as it is difficult at this stage to spray so as to reach the base of the calyx where the larva of the codling moth is supposed to swallow its fatal dose of poison. I believe also that the calyx and base or flower does not grow after the fruit has become fertile. When fertilization is completed the function or use of the calyx is at an end, and it slowly dries up. We find the calyx of a mature apple scarcely larger than when it held the pistil and stamens in in its bosom. It is only the ovary of an apple blossom that swells and develops into a fruit.

* * *

I see our friend E. G. Baldwin is still of the opinion (page 292, April) there is nothing more wholesome for a newly introduced queen than a good "licking." It reminds us of a man whose wife pounded him. His friends remonstrated; but he said, "Let her alone, for it amuses her, and doesn't hurt me." So this "licking" of the queen amuses the workers, and doesn't hurt the queen; indeed, it proves a most admirable way of introducing a stranger.

* * *

That article on bees and fruit on page 332, May, by E. R. Root, reminds us that more and more the value of bees in the production of fruit is appreciated. We are having more and more calls for bees for this purpose. But let us be careful not to assert that fruit can not be produced without the agency of insects. There appears to be a great variation in the ability of fruit-trees to fertilize their own flowers. Some seem to require insects on their blossoms, while others require pollen to be brought from some other variety.

* * *

WHY THEY DIED.

The best time to study the wintering problem is in the spring. Every colony that has died should be examined with great care and the cause ascertained, every comb being removed to make sure of the cause of the trouble. Of 13 colonies placed in the cellar, one was found dead when taken out this spring. On examining the combs they were found bare of honey. The cause and remedy for such is apparent. Of some 180 in our home yard wintered out of doors on their summer stands one was found queenless and dead. Another had almost entirely new white combs; and the bees, being unable to keep up the temperature, had dysentery and died. Another had made the winter nest at one side of the brood-chamber, and starved with an abundance of honey on the other side. Still another had changed its queen in late summer, and had too few bees to withstand the long winter.

OUR FOOD PAGE

Stancy Puerden

ONE Sunday, several weeks ago, there sat in our church a father and mother who had just come from the car after bidding goodby to their youngest son, a boy of twenty, a boy well and favorably known to every one in our town. He had joined the hospital unit which left Cleveland for France that afternoon, leaving college to enlist. I shall never forget the look on that mother's face. It was not that she was not brave. She was perhaps more composed than any of the rest of us, for the minister in his opening remarks had alluded to the young man's having gone. I shall not try to describe the expression of her face. You have seen it on some mother's face near your home, and will probably see it many, many more times. The world is full of mothers with such faces now. Every day we hear of more of our brave boys enlisting in their country's service.

And now what are we women going to do for our bit? We have been getting pages and pages of good advice, and we have been charged with being wasteful and extravagant in our kitchens. For instance, Secretary of Agriculture Houston authorizes a statement estimating that we waste food amounting to more than $700,000,000 annually. That sounds incredible, but it is only $7.00 per person a year; or computing it on a family basis, allowing five persons to the family, it makes a waste of 67 cts. per family a week, or a little less than ten cents a day. Even that seems a high average to me; and yet if the figures should be cut in two the sum total would still be appalling. It looks as if we deserve the scolding, doesn't it?

We must not confuse the need for preventing waste of food with the financial problem. If you can afford porterhouse steak, mushrooms, etc., daily, it is still your privilege. But don't waste a crumb of whatever food you use. There is an actual food shortage in the world.

Let us consider a few of the ways in which we can save food in our homes. First, take good care of all raw materials as they come into your house, protecting them from mice, insects, or decay. Second, encourage your family to eat enough for physical and mental efficiency and no more. Third, don't spoil food in preparation by burning or careless cooking. Fourth, use whole-wheat flour instead of white at least a part of the time. Dietitians have long urged this change, and we are told 28 per cent of the wheat is wasted in making white flour, or, to state it in another way, over 100,000,000 bushels of wheat. Fifth, boil potatoes in the skins and peel just before serving. Both material and food value will be saved. Sixth, save the water in which vegetables and rice have been cooked for soups and sauces. It is rich in valuable mineral salts. Seventh, utilize every drop of skimmed milk. It is a better balanced food than cream, as cream is only the fat, while skimmed milk contains protein, minerals, and carbohydrates. Eighth, save and render every bit of fat. Ninth, dry in the oven and grind scraps of bread left from the table. A good cook can think of dozen of ways to use them. And when you entertain your friends, serve them a simple, well-cooked, well-balanced meal. Don't encourage overeating by serving too great a variety when little children are starving in Belgium.

And now, Uncle Sam, we women of the United States would like to have you notice that we are taking our scolding for being wasteful and extravagant in a beautiful spirit. We are going to practice such thrift that a self-respecting pig would not find even light refreshment in our garbage-pails. We are going to do our best to have our families largely feed themselves and have something to spare by garden-making. If, as we are told, this war is to be won by bread bullets, you will find us doing our share and rejoicing that we have the opportunity to help. And may we respectfully voice the hope that before harvest time you may decide not to let hundreds of millions of bushels of grain go into drinks instead of food. We also think tobacco-fields would make beautiful war-gardens.

It would never do to finish this page on thrift without mentioning honey. Doubtless you already know our government is urging beekeepers to increase their honey production as much as possible to help out the sugar shortage. We are told that the nearer our table we can produce our food, the better, as the transportation problem is going to be almost as serious as the food problem. Therefore, let me urge again this month that you take the best of care of your little garden musicians, the bees.

Beekeeping as a Side Line

Grace Allen

"BEEKEEPING as a side line is a curse to the industry" — page 264, April GLEANINGS. Yes, that is really what it says. I read it several times to make sure. I do hope Mr. Bales smiled as he wrote it. I didn't smile a bit when I first read it, nor while I wrote a long and spirited reply. But when my bump of humor woke up (bumps do go to sleep occasionally you know), I tossed the "retort courteous" into the fire, and smiled across to Mr. Bales, clear from Tennessee to California!

Now if *ignorance* had been labeled the curse to the industry, there would have been a complete unanimity of opinion, for all reading beefolk, mainliners and sideliners alike, would agree heartily. Of course we sideliners all admit frankly that there is a great deal of ignorance and unprogressiveness among the non-professionals. Why, haven't we ourselves a neighbor who recently boasted to his neighbors, "I tell you what—beekeeping is *the* thing! Now I've got just two hives—well, I've reely got three, but one didn't do no good—'n I didn't do a single thing to 'em last year, 'n I got ten full pounds of honey"? But shall the efficiency of all sideliners be judged by that of our neighbor?

Seriously, it is true that in the ranks of the non-professional is a high degree of intelligence and skill and success. We have the honor of including men of education and intelligence among our number—college men and ministers, lawyers and doctors and editors, and men of trained business grasp. And some women! And many a man has reached the mainline only by first following patiently and perhaps stumblingly the humble tracks of the side line. Some beekeepers may have been born professionals, as it were, because their fathers were that before them; but surely most of them—I recall some great and famous names—have achieved their present dignified and substantial positions by the old and honored route of beekeeping as a side line.

In this department we want to record, one after another, the successes of non-professional beekeepers, and shall be glad to have a generous supply of these interesting stories. But we are also going to look at the other side of the shield, and admit the failures and mistakes and countless problems. In 1914 Mr. N. Person of San Francisco, caught a swarm of bees and then bought four colonies from a neighbor for $5.00—three in old hives, one in a box. He fed them to bring them thru the winter. They all died, except the one in the box. This one he transferred late in February, smoking and handling "according to the books." "The contents, probably a handful," writes Mr. Person, "left thru a crack, but the queen came back in about fifteen minutes and settled on my hand. I put her on the frames I had fixed up, and the poor fellows tried to start housekeeping again. I realized I ought to help them, so I gave a frame of bees and brood from my other colony which was very strong." Most of this brood died from chilling, so he gave another frame, and the next day found the queen outside, dead. Later he bought a queen and started a nucleus. This queen cast three swarms, all of which wintered successfully and stored surplus next season. One swarm was hived on drawn combs and "put on a stand a couple of hundred feet from the mother hive. In about forty-five minutes they were going in a steady stream back and forth to the old hive, robbing, and carrying away everything."

By 1916 he had ten colonies. He got a good honey crop and left each hive with plenty of stores. Early in February of this year they started breeding "to beat the band." But then came storms and cold weather, queens stopped laying, and brood was thrown out. Not till April did laying begin again, and by that time three queens had died, one had swarmed, entered the wrong hive and been killed, and most of the old bees were dead. So now "I am buying bees to build them up again," he writes, "and all this with plenty of sealed and unsealed stores."

Now, that is a chapter of accidents and mishaps, but he will win out yet.

In our own yard this spring I had to kill a queen because not one of her eggs hatched into larva. We bought her last year in late August, and, after finding her laying early in September, I had left her alone except to see that there were enough stores, and so had not discovered this unexpected no-goodness. The first examination this spring made me realize she was backward, as there were eggs only, in only one comb. The second examination, about two weeks later, still showed only eggs, tho by that time in three combs—not a larva in the hive. Of course that sealed her fate, and I killed her.

AROUND THE OFFICE

M.-A.-O.

HERE'S a new idea—one that might get results, which is more than can be said of a lot of "ideas." It was written to a beekeeper friend of the M.-A.-O. (it was written in deadest earnest, too) and its generally business-like air and all-pervading benevolent spirit justify its reproduction here—so here it is: "I have bees in outyards and thefs have stolen 5 hives and robbed others to the extent of 215 lbs. of honey. It is impossible to watch them, and I ask what do you think might be the results of the law if I would place arsnic between the midrib or between two sheets of foundation and place them in cirtin hives espeshialy for thefs and if they should stealit from the bees, eat it and die and it should be proved just as I have stated do you suppose I would be in any danger of loosing my scalop." How direct and clear the thought! How simple in conception! How bold and yet artful in strategy! How calculated for the general weal as well as for the intestinal linings of honey-thieves! I must say that I like it—its general sans froid and lofty purposefulness. The other editors of GLEANINGS don't agree with me—but I do. I can't help believing in the man's sincerity. Just one caution, however, viz.: Never mind your "scalop," but pay considerable attention to avoid getting those "hives espeshialy for thefs" mixed up when it comes to saving out honey for home consumption.

* * *

A visiting beekeeper a few days ago blurted this right out in the office: "A beekeeper, if he isn't being stung by a honeybee or a honey-buyer, is trying to sting some other beekeeper." Wasn't that a devil of a thing to say right in The A. I. Root Co.'s office? Yes, sir, despite dear old Mr. A. I. Root's possible objection to the strong word, wasn't that the very devil of a thing to say right in the office here?

* * *

Just to show how honey-producers themselves contribute to the demoralization of the honey market and prices: A honey-producer in western Ohio last winter sold his big honey crop at retail for $1.00 per gallon in cans—a net price of less than 8 cts. per pound. Extensive honey-dealers had then been paying more than this in carload lots. Another honey-producer — almost a neighbor of the one aforementioned —sold his crop in 10-lb. pails at $1.25. The current retail price then—and easily obtainable— was $1.75 per pail. A group of honey-producers selling in territory close to this man—but who knew their business—sold their honey in 5-lb. pails at $1.25 per pail. The uninformed honey-producer is the man who knocks down honey prices. He's the fellow that spills the fat in the fire every time. He's also generally the chief high squealer about low honey prices and the poor oppressed beekeeper.

* * *

The Man-Around-the-Office didn't fully expect to get it past Mr. A. I. Root—I mean the cuss words in the letter of that fellow that wrote a big supply house about failing to send the crank with his extractor and added a postscript saying that he had just found the crank in the bottom of the box. It was no use explaining to A. I. Root that the cuss words had to be used to illustrate the kind of man that would write such a letter. Nosiree. "Uncle Amos" was on to me and my flimsy argument, and he kept on me till I wished that he would get off. I also wished that I had'n'adidit. I guess, too, that he was right about it. But that mad-all-over letter (cuss words and all) of the fellow who didn't find the crank the first thing in the top of the packing case, tickled me so that I couldn't resist the temptation to pass it along to the unregenerate readers of GLEANINGS. I won't do it again —not while Mr. A. I. Root is anywhere this side of Bradentown, Fla.

* * *

Most of those delayed orders for the delayed A B C and X Y Z of Bee Cultures have been filled—thanks be! But the mails or freight or some other agency of the Old Nick occasionally still delay one longer even than the printer did, and then the A. I. Root Co. gets a whack that is a real whack. This came from a mad man down in Massachusetts who had had a copy promised him in March at latest, and had not got it by May 1: "Perhaps if you do not March in April you May in June and don't Ju-lie about it." Yet some people imagine the lives of these Root persons to be all happiness, ice cream, and chocolate sundaes! How would you like to get one like that? And this isn't saying anything about what Ernest got for printing the information that dandelions "produce little or no honey."

BEGINNERS' LESSONS

H. H. Root

LESSON NO. 5—THE FIRST WORK.

IN the last lesson we considered ways and means for getting a start with bees—where to get the bees, in what form, etc. At this time especially, the reader is urged to review not only the last lesson but the first three as well.

One of the first problems that confronts the beginner after securing his bees is where to put them. Conditions vary according to circumstances. One living in the country or in the suburbs can do no better than to have the hives in an orchard or in the partial shade of some tree. Too much shade is as bad for bees as for human beings. Some producers go so far as to say that no colonies do well if they stand in the shade. A little protection from the sun in the hottest part of the day, however, is advisable.

A beginner living in a city or town is often perplexed to know what is the best place for the bees. If they are located in a back lot they may cause some annoyance to neighbors, especially if the neighborhood is thickly settled. There is no objection to a back-lot location provided there is a high fence, trees, or buildings that will cause the bees to fly high, especially in case of streets or alleys close by in the direct line of flight. One should anticipate any trouble by preventing the conditions that may cause it.

If there is no high fence or hedge, or even shed or building to act as a shelter from cold winds, also to cause the bees to fly high, it is frequently advisable to put the hive in an attic or on some flat roof easily accessible. A flat tin roof, especially if painted a dark color, is apt to be a pretty hot place, therefore the hives should surely have some shade, for there is danger of the combs melting down.

There is no objection to the attic other than the inconvenience of going up and down stairs; but it is important to have the hives set close to the outside walls with an entrance cut thru so that the bees can go in and out at any time. There should be a window near by to give plenty of light, and this window should be on hinges so that it may be swung entirely out of the way, or else it should be so arranged that it can be taken out when the bees are being looked over. If this precaution were not taken, those bees that fly from the combs toward the light would merely buzz up and down on the window and die, being unable to find their way back to the hive. If there is no glass in the window the bees will fly toward the light and will eventually find their way back to the regular outside entrance. Attic beekeeping has this additional advantage, that the hive does not need to be painted.

If the hive is located in the back lot, make sure that the entrance is turned away from any nearby path or sidewalk. In this connection it may be well to remark that nothing makes the bees madder than to have some one stand right in front of the entrance. The returning bees, noticing a change in the appearance of the hive because of the obstruction, will often collect in quite a cloud. It is just as important to see that the bees in their line of flight—that is, the direction they usually take when leaving the hive, are not annoyed by moving objects.

THE FIRST WORK.

Most beginners overdo the first work. Pulling the hive all to pieces and distributing the combs around just for fun is an expensive kind of pleasure. At the earliest opportunity, however, the combs should be looked over carefully to make sure that there is a queen, that she is laying, and that the conditions of brood-rearing are normal. Even as early as March in most northern localities there should be brood in all stages—not a large amount of hatching brood, it is true, but some at least; and in April, May, and on into June, the amount of brood-rearing should have steadily increased. If the queen is not prolific, or if she is defective in any way, as shown by irregular work, she must be replaced; otherwise there is no chance of surplus honey.

A good queen starts laying in the central part of the comb, gradually enlarging the circle as conditions warrant. She should lay in regular order one egg in a cell with almost no cells skipped. If a colony is made up of old bees largely, the queen at first will be greatly hampered, for there are no young nurse bees to care for the brood. Under such circumstances, therefore, the queen should not be blamed for not starting in brood-rearing with a rush.

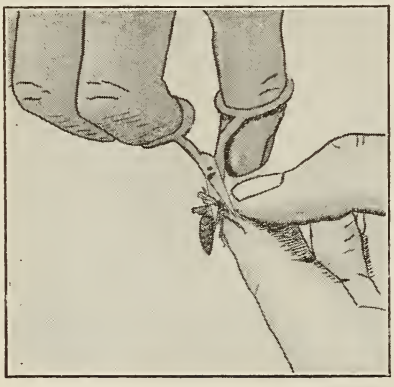
Some time in the spring, before the colony becomes too populous, the queen should be clipped. This work should be done in the middle of the day when most of the field bees will be outside of the hive. It is then much easier to find the queen. The beginner especially should stand or sit with the light falling over the shoulder, and he should pick out one of the combs in the

Queen poking her head into cell to see if it is polished ready for a new egg.

Queen laying. Note the circle of bees around her in mute adoration.

center of the part of the hive containing the most brood, looking over both sides of it carefully. If the queen is not there this comb should be stood on end by one corner of the hive, and the other combs should be looked over just as carefully.

When she is found she should be clipped as shown in the illustration. In picking her up, the thumb and forefinger of the right hand should grasp the wings, when the queen can be transferred to the left hand.



The best way to hold the queen while clipping.

When she is placed on the ball of the left forefinger and the thumb lightly held against the back of her head and thorax she will grasp the finger with her legs and the wings will stick straight out so that it is easy to clip off two-thirds the length of the wings on one side. Some clip the left wings odd years and the right wings even years. This furnishes quite a check on her age. A timid beginner should practice on drones first, for the drones cannot sting. The queen, while she has a sting, never uses it except against a rival queen.

As soon as possible the combs should be looked over to make sure that there is enough sealed honey. A beginner may find it a little difficult to know just how much sealed honey constitutes enough. No colony at any time should be allowed to have less than three to five pounds of sealed honey; for when brood-rearing is at its height honey is being used very rapidly indeed; and if the bees are running a little short they will retrench, thus curtailing brood-rearing at a time when it is exceedingly important that everything be done to build up and not reduce the strength of the colonies.

A good beekeeper sees to it the fall previous that his colonies are supplied with more than enough stores to last thru until the main honey-flow begins the following spring; but a beginner who is just starting in the spring does not have this advantage, and must feed, therefore, if the bees are running short. Unnecessary spring feeding should not be practiced by beginners. For emergencies there are a number of good feeders on the market, any one of which is suitable for the purpose. A small feeder that will hold a quart of thin syrup, made by mixing two parts of water and one of sugar, is large enough.

Many beginners in their first enthusiasm try to invent something, especially a feeder. More worthless feeders have been invented than all other contraptions relating to bee-

keeping put together. The beginner must always remember that there have been a good many hundred thousand beekeepers who have traversed the same ground before him, and it is more than likely that his idea is not new. One thousand one hundred and ninety-four patents have been issued to beekeepers for various hives and appliances. Any man with a finger sawed off can count on the fingers remaining on that one hand, without the thumb, those patents which have amounted to anything commercially. All this does not mean that a beginner's idea is useless, but it does mean that there are about one thousand chances to one that his plan is not as good as others described in standard text-books.

Some beginners ask, "What can I do to make my bees swarm?' Those having more experience ask, "What can I do to keep my bees from swarming?" It is natural for colonies in good condition to swarm, as the many articles in this number of GLEANINGS clearly show. There are ways for making increase by artificial methods; but the average beginner, while he should read up on the subject in text-books, should not try these plans until he has had a little experience. Increase by natural swarming is the safest at first. Usually some one can be found near by who will attend to the hiving. If the queen is not clipped the bees are almost sure to cluster, near by, first. If she is clipped she will be found in the grass in front of the hive, usually with a little knot of bees with her—and the bees of the swarm will return. As soon as a swarm issues from a hive having a clipped queen, the queen should be found and caged, a new hive put on the old location with its entrance facing the same way, equipped with frames having full sheets of comb foundation. One drawn comb, however, is quite an advantage. The parent hive should be set on a new location with its entrance turned the other way. When the bees return they will run into the new hive and the queen liberated among them. Queen-cells will have been started on the combs in the old hive so that in a few days the old colony will have a new young queen. Any supers that were on the old hive at the time the swarm issued should be put on the new hive, on the old location, containing the swarm. Under ordinary circumstances the bees will start work in them with a rush. No bees work with quite the vigor and enthusiasm as do those of a newly hived, natural swarm.

Swarms are not always hived as easily as this.

In comb-honey production the supers with the little boxes for the storing of honey are not as attractive to the bees as larger combs; and their tendency, therefore, unless "baited" by a good many partly filled sections held over from the year before, is to crowd the honey into the brood-combs, curtailing the space for the queen to lay, and bringing on the crowded condition so conducive to swarming. An expert can do much toward overcoming this state of affairs, but it is an exceedingly vexing problem for a beginner.

In extracted-honey production it is much easier to control swarming, since a super can be put on and the queen encouraged to lay in it before the swarming time arrives. Later on she can be confined to the first story with a queen-excluder (Lesson 3): and when the brood hatches in the super the bees will proceed to store honey there. An experienced beekeeper may be able to manage without a queen-excluder; but it is questionable practice at best, and a beginner should not attempt to get along without it. Plenty of super room, with never a chance for the bees to get crowded, almost insures success, other conditions being favorable.

Even in extracted-honey production, the entrance should be as large as possible.

JUST NEWS

Editors

IT now seems certain that the cold weather prevailing over practically the whole country in the early part of May not only delayed all forms of vegetation but foiled the plans of northern queen-breeders who were hoping to get started in queen-rearing early. Northern breeders, therefore, will be unable to start shipping out queens as early as usual.

* * *

Apiculture is now being taught in twenty-two colleges and universities of the United States, according to Dr. E. F. Phillips, of the Bureau of Entomology.

* * *

B. Anderson, County Agent at Winston-Salem, N. C., is of the kind that does much to promote beekeeping in his territory. He has a "bee club" to which he sends out information and encouragement whenever necessity arises. His letters written to the beekeepers about Winston-Salem are always timely and always deal with the immediate problems before the beekeeper. If every county agent in the United States were of the B. Anderson kind, the beekeeping business of America would begin jumping.

* * *

The Michigan legislature at its late session passed an appropriation bill which will give the State Inspector $1500 per year more than previously, to use in hiring deputies for bee-inspection work. This money will be available July 1. The services of a deputy have been secured. Until the new appropriation becomes available not a great deal can be done excepting the inspection of the yards and vicinities of the queen-breeders. This work is required by law. The money provided under the old law is about exhausted, and nearly all promises to inspect before July 1 will have to be canceled until the new appropriation becomes available. The new law in Michigan makes it a misdemeanor to keep bees in a box or crossed-comb frame hive, and provides a penalty of from $5.00 to $25.00 for each offense. The State Inspector will enforce this law, but will give reasonable time for transferring the bees.

* * *

Honey-producers will be interested from a money point of view in the following "tip" sent out by Dr. E. F. Phillips, Apiculturist of the United States Department of Agriculture: "In order that the beekeeper may be assisted in placing his honey where it will be most needed, this Department proposes to furnish two kinds of information. The Bureau of Crop Estimates will issue in May, July, September, and November honey-crop reports and crop prospects. The Office of Markets will issue at intervals the available data on honey-crop movements and prices from actual sales at wholesale centers. These two lines of information will be furnished the bee-journals, and the crop reports already go to many beekeepers. Arrangements will be made to send the reports of the Office of Markets to interested beekeepers. Every beekeeper should hold his honey until he has received these reports, for they will be free from bias, and more accurate than most quotations."

* * *

The Bureau of Entomology at Washington reports that the Texas beekeepers are coming to the front nicely on combless packages. They have over 10,000 pounds ready to go to Idaho and Colorado and there will soon be more. The bureau notes that "this is a fine response."

* * *

The Bureau of Crop Estimates puts the winter losses in Idaho at 46.6 per cent, and states that there are only 60 per cent of the working colonies in that state now that there were a year ago. This is a tremendous shrinkage of bee power in one of the most important honey-producing sections of the country.

* * *

GOING AHEAD WITH THE WORK.

The Apicultural Department of the Bureau of Entomology at Washington informs GLEANINGS that the work mapped out at the national conference of beekeepers and instructors held at the national apicultural station at Drummond, Md., is being vigorously pushed. Literature urging the largest possible honey production this year, with helpful suggestions, has been sent to the beekeepers of 18 states and to all the county agents in the United States. Nine thousand honey-crop reporters have been called on for service. Reports on freight embargoes in New England and on the glass-container situation have been submitted to the Secretary of Agriculture. Organization has been completed for gathering and publishing, by

July 1, honey-market reports for the whole country. An earnest effort is being made to secure a special appropriation from the Agricultural Department for use in advancing apicultural interests. A large number of beekeepers' associations and state workers have been induced to circularize members of their organizations to speed up honey production in this war year.

* * *

U. S. GOVERNMENT'S REPORT ON NUMBERS, CONDITION, AND WINTER LOSSES.

The Bureau of Crop Estimates of the United States Department of Agriculture issued a "Honeybee Report" on May 1, based on the returns from inquiries sent to about 9000 honey-crop reporters all over the United States.

According to the Government's estimate, winter losses of bees for 1916-17 have not been quite so heavy as during the previous two years, being 10 per cent this winter compared with 13.3 and 12.6 per cent in 1915-16 and 1914-15, but were very severe in many Rocky Mountain States, amounting to almost half of all colonies in Idaho. The heavier losses are reported as being due to the long winter and extremely low temperatures.

The total number of working colonies on hand this spring is 4 per cent greater than last year, increases of from 5 to 12 per cent being shown in most of the North Central States, and reaching 18 and 20 per cent increase in Illinois and Nebraska, while in most of the Atlantic Coast States from Maryland northward the increases range from 10 to 25 per cent. Increases of from 5 to 10 per cent are reported from most Southern States, but corresponding decreases occurred in North Carolina, Florida, Mississippi, Texas, and Arkansas. Extremely heavy winter losses in the northern and central Rocky Mountain States prevented a more material increase in the number of colonies for the country as a whole.

The condition of colonies as to healthfulness and strength is 91.1 per cent of normal, slightly lower than last year, and 4 lower than the average of the past four years, being good to excellent in the Atlantic Coast and North Central States, embracing most of the white-clover belt, but poor in most of the Gulf States, particularly Texas, and in the Western States generally.

The condition of honey-plants averages 82.5 per cent of normal for the United States, which is about 13 below both last year and the four-year average. The conditions are particularly poor in Florida, Iowa, Nebraska, Texas, Idaho, Oregon, and California. The prospects in California for sage honey are very poor, owing to severe fall and winter drouth and a late spring. Orange is more promising, and conditions may improve from recent general rains in the southern sections of the state. Serious winter-killing of clover and alfalfa is reported from many sections, particularly Nebraska, Kansas, and Illinois. The late spring over most of the country is, to some extent, responsible for the low-condition figures on honey-plants.

Fruit prospects are, at this early period, very favorable; and if good crops are finally realized, and the price of sugar should remain high, the narrowed margin between the cost of honey and sugar may be expected to encourage a larger use of honey for preserving fruits.

* * *

A MORE GENERAL USE OF FIBER CONTAINERS.

"The Official Bulletin" of May 15, now published by order of the President, contained the following that may interest those who sell honey in small lots on home markets, for the practical fiber honey-container is now almost a certainty:

"Plans for lessening the use of tin cans for products non-perishable, thus releasing large quantities of tin for use in the manufacture of cans as containers for seasonable foodstuffs, have about been completed. If the public will co-operate, there will undoubtedly be sufficient supply of tin cans to care for the perishable crops for the summer. To this highly necessary condition the individual may assist by accepting goods in fiber or paper instead of tin whenever there is no deterioration in the change. It is exceedingly important that there be tin to preserve the summer vegetables and fruit for use next winter. The housewife who helps us provide that supply by lessening her own demand for tin-packed goods is undoubtedly 'doing her bit' in a patriotic manner. Some of the products which it has been suggested may be successfully packed in fiber are coffee, tea, tobacco, soap powders, cleaners, shoe and metal polish, soaps and shaving preparations, talcum powders, alum baking-powders, spices, condiments, raisins, prunes, and various drugs and chemicals.

"For home use, in putting up jellies and preserves, the fiber containers may be used, and will be found cheap and satisfactory. Information as to where they may be obtained will be gladly furnished inquirers who address the Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, or any of its branches in the several cities of the country."

GLEANED BY ASKING

E. R. Root

E. F. B., Connecticut.—In opening hives in the spring there is often found too much honey. When six frames out of ten are filled with honey for the greater part, and the others are somewhat cluttered up with pollen, honey, etc., so there is not proper room for brood, what would you do in that case? Is it best to set aside these honey-frames and insert new frames with full comb foundation? Do you think that bees ever carry honey from the brood-frames to the super, or is the super honey always brought directly in from the fields? I have had some super honey that seemed to me not fresh, but as if honey had been carried up from the main part of the hive.

A. As a general thing there is not much danger of having too much honey in frames with honey and pollen in the brood-nest in the spring. Sometimes later on in the season we have a condition where we say the queen is "honey bound," but there is no trouble along that line in the spring. The condition you refer to is a little above normal but should not be disturbed. If you were to put in frames of foundation you would spread the brood-nest and do more harm than good. As a general thing the bees will move the honey from one part of the brood-nest to the other in order to give the queen more room to lay eggs during the breeding season. It is always a splendid thing to have lots of stores in the hives, for then the queen will breed more and the bees will see that the stores are properly moved.

Yes, they move them from the brood-nest into supers, and sometimes from the supers, during cold weather, down into the brood-nest again.

A. B. S., Ohio.—I have some colonies that are not going into the supers, and others have begun work in sections. What is the trouble?

A. Something will depend on the strain of bees. Some strains will go upstairs more readily than others; but the usual explanation of the condition mentioned is that the colonies that persist in staying downstairs are not strong enough to go above. Another explanation may be that the honey-flow is too light. If there is considerable room in the brood-nest, bees will not go above until the lower part of the hive is filled and combs begin to whiten.

W. N. T., Massachusetts.—I live in a locality where there is practically no clover. I wish to go into the business extensively. Would you advise me to move?

A. Yes, providing you intend to make bees your sole means of livelihood. But if your main income is from your business or profession, and you are keeping bees for pleasure as well as for profit, we would advise you to stay where you are. If you decide to move, seek some locality where lime is abundant, and where clover will grow readily. If possible, find a place where farmers are growing alsike extensively. Those who grow different legumes are usually located in a place where the soil is alkaline.

Some farmers scatter lime on their farms to make up the deficiency. If you can, with your clover locality, find a good place lying near some stream, where there is plenty of fall flow, it will be so much the better.

Alsike-clover regions where there are no bees are pretty scarce, and you may find it necessary to move into a western country. If you do, buy a round-trip ticket, taking in the western states, with the privilege of a stop-off. Hunt up the beekeepers in the locality and find a place that is not already occupied, especially one where irrigation is starting, and where alfalfa will be one of the main crops. In some places you will find beekeepers a little reticent, especially if they think you intend to locate in their territory. In some cases you can buy out a beekeeper including his bee range.

J. C. B., Illinois.—Is there such a thing as having a colony too strong for the honey harvest?

A. If there are too many bees and too much brood in all stages, and hive boiling over with bees at the approach of the harvest, there is danger of premature swarming. Such a colony may waste its efforts in loafing and getting ready to swarm when a colony of less strength would get down to business and start storing in the supers. In the production of extracted honey, if there are plenty of supers with empty combs there is not much danger of having a colony too strong, providing a super of combs is given in time. In the production of comb honey it is best not to have a colony too strong; and to forestall that condition a little equalizing can be practiced to advantage.

In relation to this general proposition, it is but fair to state that not all beekeepers are agreed; and the question of locality will have some bearing. If the honey-flow comes on very gradually, increasing in the mean time, bees will be more likely to start swarming than if the flow comes on with a sudden rush. But even here again locality will have a bearing. If possible one should consult some expert beekeeper in his own locality, and be governed by his advice.

P. G. M., New York.—I have heard it said that black bees produce whiter comb honey than Italians. Is that true? and if true would you advise me to continue with them?

A. It is true that comb honey from blacks is a little whiter; but the difference between that produced by Italians and blacks is not enough to be noticed by the general public. In fact, European foul brood is now so prevalent that you would do well to Italianize after the honey harvest when queens are cheap. The blacks will be almost sure to contract European foul brood sooner or later.

Mother Bee NURSERY RHYMES

By M.G.P. (Mother Goose Plagiarized.)

Little Miss Charm has lost her swarm,
And can't tell where to find it;
Leave it alone, it will never come home,
Because she did'nt mind it.

GLEANINGS FROM THE NORTH, SOUTH, EAST, AND WEST

THE DIXIE BEE

Grace Allen, Nashville, Tenn.

ALL the farmers and near-farmers in this section predicted that the excess of rains in February and March meant a drouth later, and they hit it right as to April. Day after day and week after week went by without a drop of rain. Then, just as locust swept into full bloom, the dry spell broke. In fact, in several counties it fairly *smashed,* bursting into a hailstorm that ruined gardens and tore the locust bloom to bits.

On Sunday, April 22, when we came home a roundabout way so that we could get a walk by the creek and across the commons, we were surprised to find a few, a very few, white-clover heads nodding at us, with the black-locust trees only just coming into bloom. That was good time for the locust, and fully two weeks earlier than I have happened to see clover before. However, one white-clover blossom doesn't make a honey crop; and while just in the yards around Nashville it has opened up nicely by now, May 7, the stock that runs loose on the commons keeps it cropped discouragingly close. In other counties, it is reported as coming late and slow, and thru all this part of the state the dry April has hurt our prospects materially.

At present, in this early May, we are going thru a run of cold gray weather, with bees flying very little—some days not at all. I have found dead drones on the alighting-boards, with drone brood outside—a sight not normally scheduled for May in Tennessee. A wet spell, then a dry spell, then a cold spell—what does that spell?

* * *

County Agent Ebb Thomas delivered an interesting address to the Davidson County Beekeepers' Association at their second meeting. He stressed the grave food situation, and the necessity for the maximum of production, and called on the beemen to do their bit. And so they will. Mr. Bartholomew voices the same thought in one of his circular letters: "Not all of us can do military service, but there are plenty of things to do in addition to carrying arms. Do your share to aid in the campaign for increasing the honey crop, and, by so doing, help 'do your bit.'"

* * *

Two such beautiful covers—the dandelions of April and the fruit-bloom of May! Are we not fortunate to have work that throws us into touch with Nature, with all her wonders and her beauties and her mysteries, her "divine things more beautiful than words can tell"?

* * *

Recently I read a long article reprinted from *The Medical World.* It was entitled "King Candy," and gave interesting testimony to the great value of candy and other sweets to conteract the habit of alcoholism. As I read it, I wished they had gone a step further and called attention to the superior virtues of honey. Candy is surely less harmful than alcohol, and honey is more beneficial than candy.

* * *

THE BEE AND POULTRY DEMONSTRATION TRAIN.

On a sunny day in late April we went to the country, one of us leaving a prosy office behind, and the other a still prosier house-cleaning job. The day was filled with dogwood blossom and black-locust bloom and the sweet, sweeping scent of them. We lunched under old trees, wonderful with new-born leaves, and then, at 2:00 P. M., went to the siding by the little country station and entered the Auditorium Car of the N. C. & St. L. Ry. Co., where the lectures on bees and poultry were being given. On April 9 they had left Nashville, making three and four lecture-stops each day for one week. The next week they rested, then out again for another week. Mr. Bartholomew, the federal bee expert, and Mr. Crane, the federal poultry expert, both of the University of Tennessee at Knoxville, made the entire trip, while Mr. J. H. Judd, the N. C. & St. L. Special Agricultural Agent, and Mr. A. D. Knox, the Assistant Agricultural Agent, were each out part of the time. The private observation car, with sleeping-rooms and library, and the Auditorium car, were dropped off at the siding by some train, the lectures delivered, questions asked, and friends made; then some other train picked them up and ran them on to some other siding at some other station to repeat the good program. It was on the last day of this second week that we went out.

There were pictures of different breeds of poultry on the walls of the car, and bee supplies and model chicken-coops up in front by the speaker's table, while the rest of the car was filled with chairs—arranged as in any public hall—even tho the aisle

was necessarily narrow. When we entered, on time, as we thought, in spite of having stopped by a wayside pump for a drink and wash-up, Mr. Bartholomew was already speaking. He urged the splendid possibilities of Tennessee beekeeping, the wisdom of producing honey at this particular time of high prices, and the necessity for improved methods of apiculture. He made a strong plea in favor of the production of extracted honey, advocated shallow supers for this section, described the interesting prism experiment for testing the purity of honey, shooed queen-excluders right out of the hive, even when running for extracted, urged practically unlimited room, put the second super on top of the first and the third on top of the second, and renewed his always-convincing arguments for winter packing. In this connection he told about Judge Cook, of Chattanooga. It seems that Judge Cook decided to put four hives in a winter case last fall; and this spring when he unpacked he sent word to Mr. Bartholomew that those four colonies were already up to full summer strength, any *one* of them being equal to any *six* of the unpacked colonies! In the face of Dr. Phillips, Mr. Bartholomew, and Judge Cook, will there be an unpacked hive of bees in Tennessee this fall?

Mr. Crane followed with an interesting and instructive talk on poultry-raising that I wished I might have heard several years ago. After the lectures we were escorted to the other car, where Mr. Knox played host most graciously with some refreshing sparkly lemonade. And here we learned that so much interest had been shown, and so much enthusiasm developed, that they had decided to run on for still another week. They had talked to as many as 650 people in one day, more than 5000 in the two weeks. And the kiddies came too, as you can see in one of the pictures Mr. Bartholomew so kindly gave us. At one wide-awake station they had to hold an overflow meeting outside, as the car could not contain them all. Seven hundred inquiries about beekeeping had reached Knoxville as a result of the first week's run.

Then the next week, a Nashville bee-supply agent told Mr. Allen that something surely had happened to the business. Orders were coming in so fast it was bewildering. "And they're most of 'em beginners too," he confided; "I can tell it by their letters!"

* * *

Bees athrill with summertime, humming thru the haze,
Bringing gleam and witchery to all the sunswept ways,
How you set the tender heart of Mother Earth acroon
With radiance and romance from the rhythmic heart of June!

Flocking to the poultry and bee special. The kiddies came too.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.

MAY 4, and still winter is lingering in the lap of spring. The weather has been unusually cold all thru April and May to date, and for the last three days we have had snow flurries with small piles of snow still lying in fence-corners.

This sounds "frigid," without doubt, to our southern friends, and yet in a letter just received from a well-known beekeeping friend in Texas he says that many of their honey-bearing sources were so frozen as to be useless for the bees, and that the weather there is unseasonably cold too. He further says that he is feeding both honey and pollen to make it possible to rear queens; and in order to have drones for mating purposes, queenless colonies have to be supplied with drone brood. He estimates the spring loss of bees in his part of the state at 25 per cent, and says that colonies are still going backward.

After reading this letter I once more came to the conclusion that no country has a monopoly of the good or bad things common to man. While we have no doubt been more or less impatient with our extra long spell of cold weather, yet after all no harm in particular has been done, as all vegetation is dormant and the bloom will come along later all right, no doubt. Bees carried a little pollen for the first time this spring on April 18. Since that date they have been out of the hives only a few days, and I do not think an ounce of nectar has been brought in yet.

Almost every day people say to me, "This weather must be hard on the bees;" and while it certainly has not been ideal for the colonies to build up, yet it might be worse. Experience has taught us that, provided the colony is strong and has lots of good stores, it will not suffer so much from steady cold weather that stops all flying as it would if weather were slightly warmer and bees were enticed out for pollen. With intermittent spells of sunshine and cool winds and clouds, many bees are lost. Judging from external appearances, bees are standing the long cold spring quite well indeed, and prospects are fair for a crop, as alsike, altho damaged somewhat by heaving, has a fair stand and should come along all right with rains and warm weather.

* * *

Dandelion "yields little or no honey"—April issue, page 252. Is this a question of "locality," or of mistaken identity? Almost every year we hear of some beekeepers getting some "dandelion honey" from extra strong colonies. Personally, I think the bulk of this early honey comes from willow and fruit bloom here in Ontario; but I am bound to admit that we have already extracted honey out of supers before clover flow came on that had the dandelion flavor without a doubt. Would the abundance of pollen from dandelion, coming in at same time as honey from willows, be the cause of this dandelion flavor? Possibly but hardly probably; and I feel sure that at times the dandelion here in Ontario yields quite a lot of honey in addition to the bountiful supply of pollen that seems to be always to be in demand by the bees.

* * *

Every beekeeper going to a convention in the future should pocket a copy of that letter from "Mary," p. 116, before leaving home. Surely the sketch is true to nature, for is it not true that "every beekeeper has his pet theory"? and often the convention is the place that he looks to as a means of "getting this off his chest." One man has a pet hive, another a pet method of doing some particular job in the apiary, while still another will take the floor half a dozen times to extol the virtues of some pet kind of packing material. Yes, members of the O. B. K. A. do those things just as they do on the other side of the line, for, after all, human nature seems the same whether you live north or south of the great lakes. Let me repeat, that letter is a "gem," and personally I think of taking a copy of it with me when I go to the next convention.

* * *

Much has been written about outdoor wintering, and as to how far north this method can be successfully practiced; and while I have been in favor of the outdoor method I must confess to being surprised a few days ago to learn that bees are being wintered outside at a point much further north than I had deemed possible. A friend spent the New Year holidays up in New Ontario, at a point about 450 miles due north of Toronto, and he told me on his return that some extensive beekeepers up there were wintering outside exclusively. All going well, I want to get in touch with these beekeepers and find out what success they are really having; for if bees can be successfully wintered that far north, surely some of us need to revise our ideas a little.

* * *

WHAT SHALL THE PRICES BE?

Speaking of prospects of a crop naturally brings to mind the question of probable prices. If prices are to advance in proportion with other food commodities, beekeepers must prepare their minds to think of figures away above any price ever received by any of us of this generation—bread, 20 cts. for a three-pound loaf; potatoes $3.00 a bushel, and hard to get at that figure; bacon 45 cts., and butter 40 cts. a pound. These are just a sample of prices familiar, I suppose, to all of us. In the face of these figures a well-known firm in Ontario recently sent out circulars intimating that, because of the goodness of their heart and their great interest in beekeepers, they would buy the crop in advance, whether small or big, and pay the munificent price of 10 cts. a pound, they to supply the tins and the beekeeper to fill all honey into these said tins, which were to be of the 2½ and 5 pound sizes. In view of the fact that many last fall sold for 10½ cts. in large barrels, f. o. b. shipping station, it is needless to say not many will tumble over one another in accepting this firm's *big offer*.

IN TEXAS

By F. B. Paddock, State Entomologist

THAT the beekeeping industry of Texas is not fully appreciated is one of the facts brought out by the series of meetings held by the Texas A. and M. College and the State Entomologist in co-operation with Mr. Kennith Hawkins of the U. S. Department of Agriculture. These meetings were arranged primarily for Mr. Hawkins, in such a way as to allow him to see all degrees of the industry. Places were visited where but few bees were kept and there was no local beekeepers' association; next, places where local associations exist and beekeeping is just beginning to develop; and, finally, places with local associations and a highly developed industry. Naturally considerable attention was given to the flora in each section. It was found that in some localities the flora was most excellent for keeping bees; but the people were ignorant and indifferent to the possibilities of the industry. In another section it was found that several beekeepers were attempting to develop beekeeping, but the flora was not sufficient. In one section it became very evident that floral conditions are almost ideal for beekeeping, but the industry is only well started. This section is seldom heard of in beekeeping; but the prospects are certainly as good as any in the state, and there is every reason to expect a great development there in the next few years. It was hard to find the principal honey-producing section in such a condition as it is this year on account of drouth and late spring freezes.

At every place the beekeepers who attended the meetings were intensely interested in solving their local problems. Much time was given to the discussion of these matters, and in every case the beekeepers felt that they were better able to meet their conditions after attending the meetings. Needless to say, the field meets were enjoyed by all. These are in keeping with the modern idea of instruction, "to do is better than to say;" a demonstration is more easy to comprehend than a lecture.

In this connection, meetings were arranged in two counties between the County Agricultural Agent and the local beekeepers' association to hold schoolhouse meetings to demonstrate modern beekeeping, primarily with a view to eliminate box hives. There is no doubt that this step will mean much for the industry in those counties. Reports of the first meeting are already in and they were considered a great success.

Many of the prominent persons in Texas beekeeping were met at those meetings. It is always interesting to know and talk with those of whom one has read as being leaders in a certain line of work. Several of these men are well-known queen-raisers, others are large honey-producers.

The net results of these meetings have turned out far more than were anticipated. Not only have the places visited asked for a return meeting, but many other places have expressed a keen disappointment that they were not selected for this first series of meetings.

HONEY PROSPECTS.

Conditions over the state generally have improved materially since our last report. Local rains have occurred over most of the state which have been a wonderful help. There is still a very great deficiency in moisture, and many of the honey-plants will suffer accordingly. In this locality prickly ash was in bloom from April 15 to 25, and the bees worked very hard on it during that period. The mesquite bloomed from April 24 to May 10, but the bees did not seem to work hard on it. California privet bloomed from May 1 to 10. The period was very much shortened by dry weather. The bees worked very hard on it. Horsemint came into bloom the first week in May. The flow will undoubtedly be very short on account of the extreme drouth. In the southern section the mesquite flow has been short, but the second bloom is expected to yield well. In the western section the mesquite has not done well; huajilla has done very well, and catclaw promises to yield well. In the eastern section the conditions have been very favorable this spring. Rattan and holly have done unusually well, and some beekeepers have put on the third super and are now extracting. In this section the best honey-plants are yet to yield, which indicates an excellent crop of honey for that section. In the northern section the bees are building up well.

GREAT INCREASE IN COMBLESS-PACKAGE SHIPMENTS.

There has been developing in this state during the last two years a great trade in pound or combless packages of bees. In the usual way this trade has not been advertised but several beekeepers sell a thousand pounds of bees in this way during the spring. In the southwest section of the state, where the honey-flow was cut short, some of the beekeepers made an additional effort to dispose of their bees in this way, to reduce the cost of feeding and to realize some revenue. Now comes the suggestion from Dr. Phillips that, due to the excessive

winter losses in some of the northwestern states, the extra bees of this state should be disposed of to the beekeepers of those states. A movement is already under way thru the State Entomologist's office to make an inventory of the possible amount of bees that will be offered for sale under such conditions. Orders have been invited from the above-mentioned states, and it is hoped that Dr. Phillips' idea—not an idle bee in the United States—will be partly realized in the movement.

INSPECTION FUNDS TO BE CUT.

It is to be regretted that the special session of our legislature, now convened, is in such a retrenchment mood. Reports indicate that the funds asked for by Director Youngblood, of the Experiment Station, for foul-brood-eradication work will be cut at least 50 per cent. In making his estimates Director Youngblood presented to the legislature the least amount that could be expected to carry forward the work properly. It is hard for some to see the wisdom of leaving such an industry as beekeeping in Texas with such little protection as the legislature is inclined to give. In these days of great conservation of food what can keep better returns than to make it possible for the bees to gather more nectar which is otherwise lost?

MYSTERIOUS DYING.

There has been reported a peculiar case of bees dying in large quantities in the western section of the state. In one case of twelve colonies, almost every bee in the hive died in one yard in sixteen hours; but in this yard, at the same time, there were eighty other colonies in good condition. At this time apparently there was nothing for the bees to work on. It is stated that the bees acted as tho poisoned, tho in some cases they appeared to be paralyzed. In 1912 a similar complaint was received, and some investigations were made in the affected apiaries. One of the owners stated positively that a neighbor had placed calomel in a tank where the bees were in the habit of getting water. This year the trouble ended as mysteriously as it started, as was the case in 1912.

AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado

THE beekeeper who has courage, credit, and common sense will be the winner this season. While the advance in supplies has been sharp, the advance in the price of honey has been almost as pronounced. What is needed is every hive full of bees. On account of severe losses this will not be accomplished; in fact, the West is very short on bees this season. The losses have been heavier than reported in the May bee journals, and prices secured will be somewhat higher than some figures mentioned in our May journals.

The greatest asset the West possesses is the lateness of the main honey-flow. This enables the colonies to become populous and store large amounts in the aggregate, but scattered over two months or more duration. An unsatisfactory location is one where the heavy honey-flow comes on very soon after the bees have come out of winter quarters.

When our honey-flow comes in July and August, we have May and June to build up our colonies. The later the flow, the better the crop, especially if the flow keeps improving as the season advances.

This season is very late—so late, in fact, that the losses are not over with at this writing (May 7). We have just had nearly two feet of snow following a honey-flow from dandelions. It is still cold, and our losses of colonies will be heavy. Many colonies of fair strength have already succumbed and more will follow. With a large amount of brood to care for, a colony's resistance to cold seems to be very small.

COMBLESS PACKAGES OF BEES.

With the poor season reported from Texas, it is possible for the Texas beekeepers still to make some profit this year by selling bees to the Rocky Mountain beemen. By the time this is read, doubtless thousands of packages will have been sold in the mountain region, where the losses have been more generally heavy than for years past. The first ten days in May were frightful, snow and cold chilling much of the brood and destroying many, if not all, of the weak colonies. The bees were gathering nicely from dandelions a few days previous!

If our beemen have sufficient funds or credit so that all hives could be refilled, it would naturally increase our crop, but probably less than half of the hives will be filled this year in spite of the good prices assured. Honey-producers are more discour-

aged than for several years past, partly because of the extremely low prices secured last year and severe losses this past winter.

WHAT IS THE TROUBLE WITH THE ROCKY MOUNTAIN BEEMEN?

Honey production is not as uniformly profitable in this part of the United States as it should be. This can be proven by one very simple test. Here is the test: What do bankers think of bees and beekeepers as risks? Most bankers do not care, from past experiences, to loan generally to honey-producers, for the reason that these producers do not secure uniformly good crops; marketing is too slow and difficult, and bees are so prone to die; and then an outfit is practically unsalable. Banks are just as liberal in their loans to our uniformly successful beemen as they are to our uniformly successful farmers; but the percentage of successful beemen is smaller than the percentage of successful farmers.

It is the duty of all interested in bee culture to establish beekeeping on a substantial, profitable plane. To do that we must have better-trained beekeepers. Our problem in the West is a complex one; but the rewards are satisfactory for those who have solved the questions of production, purchasing supplies, and marketing honey. None have yet solved the question of wintering satisfactorily, and the bee-disease situation is not yet controlled as it should be.

Most of our successful beemen have lost half or more of their bees at some time during the past ten years. The loss runs from ten to twenty per cent every year. Quite a few of our most successful beemen expect to lose heavily each winter, in this way having empty hives for increase each year. If all colonies were wintered, the extra care necessary to handle out-apiaries successfully would be more than our beekeepers could give with the size of their operations. The truth is, our beemen do not want to work hard (sixteen hours a day) for more than three months each year.

Our problem is to prove that one man can manage five hundred to a thousand colonies more profitably by wintering all of them and then controlling and keeping down increase, than to lose ten or twenty per cent and use the empty hives for the increase. If it is more profitable to do this, we want to know it. The arguments in its favor are that larger crops can be harvested per colony from well-wintered stocks, and that the frequent severe "knock out" winters, such as the Rocky Mountain region has just experienced, would be largely avoided.

The arguments against the plan are numerous:

1. It is too expensive to prepare and pack colonies for winter — the situation with many being stated that it is impossible— they have not the money nor the credit.
2. The work necessary is more than one man can do, and help cannot be had.
3. After a severe winter and heavy losses, crops are generally good and large increase is possible, often refilling all hives in one season.
4. Severe winter losses keep the best locations from becoming grossly overstocked.

When summing up these arguments the really wideawake beekeeper will come to the conclusion that the most profitable course will be to winter all of his colonies of normal strength in the best possible manner, and the careful manipulation will turn into honey what energy otherwise would go into swarming.

If every set of hives or comb is made to pay a good dividend, it will not be difficult to secure funds for some more equipment necessary to secure best the stability of the enterprise. We must cut out the extremely large leaks in our business, and wintering losses are among the heavy ones.

BETTER PROTECTION FOR WINTER.

Mr. George S. Demuth, of the Bureau of Entomology, recently spent a few days in Colorado on his return from the Northwest. Mr. Demuth had been investigating wintering conditions, and had some very interesting observations to relate.

Wintering in Idaho has been carried on much the same as in Colorado, largely because many of the Idaho beemen were originally from Colorado. Winters in Idaho are more severe than with us, and thoro wintering preparations are more necessary. Most of the losses in Idaho were caused by honey-dew in the winter stores.

Mr. Demuth expressed surprise at the ease of wintering here, but believes Colorado beekeepers should seriously test the heavy packing of colonies with a contracted entrance. Undoubtedly this will be tried out this coming winter in various parts of the state. Our heaviest losses are caused by the solid granulation of the honey in the hive. In these districts it will be necessary to extract all honey, and winter bees on sugar syrup before much success will be accomplished, as packing heavily will not accomplish very much toward preventing granulation in the hive.

Another interesting fact to Mr. Demuth was the lateness of our honey-flow, allowing of a long period of building up during April, May, June, and part of July, our main surplus coming in August and often part of September.

HEADS OF GRAIN FROM DIFFERENT FIELDS

The Beekeeper Answers

BY GRACE ALLEN

What are the silvery streaks I see
Slanting across the mulberry tree?
Spirits in tune with the rapture of things—
Bits of June that have taken wings.

What are the drops of light I see
Drifting across the persimmon tree?
Gallant crusaders to far-off things
That yield but to faith and unfearing wings.

What are the flaming darts I see
Flashing across the magnolia tree?
Wild wee lives that are drunk on things
Like June and clover hearts, beauty and wings!

Full Sheets of Comb Foundation or Only Starters

I am a beginner and very enthusiastic, for I just love to work with bees. I started with one colony last year, increased to four, which have wintered well.

Now I propose to produce bulk comb honey in shallow 5⅜-inch frames, as I think bees will store more in them than in the small sections, and I can sell all I can produce of this bulk honey, all grades, right at home at 15 cts. per lb., and that is all I can get for the sections. Won't the bees store more honey in shallow extracting-frames than in sections?

Would you use full sheets of thin super foundation in the shallow frames, or starters? Do you really think it pays, financially, to use foundation in these shallow frames?

In Dr. Miller's answer to question 2 of C. A. C., Lincoln, Del., page 204 for March, I wish to know why he couldn't modify the answer somewhat and use a Hodgson ventilated escape-board with double escape, instead of bottom-board under the top story, and let the bees go down below thru the escape, at will, after they emerge from the cells. I have just finished reading his book, "Fifty Years Among the Bees," and I like it well—think I have gotten a great deal of information that just suits my locality.

Shawsville, Va. W. W. Likens.

Dr. Miller replies:

It is quite generally agreed that more honey can be obtained in the larger combs than where the room is broken up into little compartments, as with sections. If the price is the same on each kind of honey, you are very wise to let sections alone.

We know that in most cases publishers of bee journals are more or less interested in the sale of comb foundation, and it is not unnatural that they should lean toward the belief that it is a good thing to use a good deal of it. One can hardly blame them. On the other hand, can one blame the beginner for using in his sections 1-inch starters instead of filling them with foundation, thus saving three-fourths of his outlay?

Now, I am not interested in the use or sale of foundation beyond the interest in it for my own use. I wish I could reach the ear of every beginner who uses foundation. At any rate I ask the earnest attention of all who read this. I have been producing comb honey for a great many years. I have paid out hundreds of dollars of good money for foundation. If I had used inch starters I could have saved three-fourths of that money; for during all these years I have filled the sections with foundation, using top and bottom starters. But for every dollar saved in that way I should have lost two. That's putting it very conservatively.

Let me tell you a little about it. Suppose we have a strong colony in a heavy flow with supers of sections on it. Let us put into it side by side two sections, one filled with foundation, the other having a narrow starter. The bees will at once begin work on each, and it will not be many hours before we find shallow cells drawn out, with a little beginning of honey in many of them. In the one section work will be begun in the whole of the section, but in only a fourth of it in the other; and not until comb is built to fill the vacant space can work be done in the whole of the section. What between the extra honey it takes to build that comb and the delay caused in working in the whole of the section, it is not hard to see that there is lost in the crop a good deal more than would pay for foundation to fill the section full.

There is another item of less importance, but still worth considering. With sections filled with foundation, the queen so seldom goes up to lay in supers that it is not worth while to use excluders. If narrow starters are used, queen-excluders are absolutely necessary, or the bees will build much drone comb in the sections, making the comb not quite so nice in appearance, and, what is still worse, the queen will go up, and a lot of drone brood will be in the sections. To be sure you might avoid this by having an abundant supply of drone comb in the brood-chamber, but that would be only making a bad matter worse.

Unless you are so rich that you can afford the loss, don't fail to fill your sections with foundation. Same thing with shallow frames.

It may be that it would work as well or better to allow the bees to go down thru an escape-board, but in that case it is just possible that the last of the brood might not be so well cared for. But then I don't know. C. C. Miller.

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What the Beginner Needs to Watch for the Most

Dr. C. C. Miller:—This spring I bought eight colonies of bees in good condition at a bargain for $25, including all equipment of extra hives, etc., for comb honey. Because of lack of experience I feel that I have quite a job on my hands to handle them properly. Will you be kind enough to outline the things that I shall have to watch the most?

Also, would it be worth while to go to the expense of changing my equipment for the production of extracted honey next year, with only eight colonies, plus this year's increase? I have ten-frame Langstroth hives.

Washington, D. C. Harold L. Kelly.

It is a very difficult thing to say what you will have to watch most. I know it's a common thing for a beginner to feel that some one of experience can give him advice that is exactly suited to his particular case—such advice as will obviate the danger of making a whole lot of mistakes. Suppose I should undertake to do that for a number of beginners. I don't know the circumstances of each. So far as I know, one is the same as the other. So I write to one of them that he must be on the watch against having an excess of drone comb in his hives. And if it's advisable to write it to one, it's advisable to write it to all. And then it's possible that each one has frames filled with worker comb and doesn't need any watching on that point. But I don't know that, so the only safe thing is to advise each.

Then I think of another thing that needs watching, and each one must be told about it. Then one thing after another comes up as possibly needing watching; and when I have covered about 273 different points I find I have written enough to make a book. That's exactly what every beginner needs, and exactly that sort of book you already have if you have Root's A B C and X Y Z of Bee Culture.

My word, then, to the beginner is to have a good bee-book—more than one, if he likes. Some subscribe for a bee journal, thinking that is enough. A bad mistake. If you cannot have the book and the journal, by all means get the book and let the journal wait. You may pick out the things in the book that you think you most need; but if the right sort of stuff is in you for the making of a beekeeper you'll be likely to read the whole of the book, and find it as interesting as a novel. Then you will read the book again and again, until you are familiar with all it teaches.

After you have done your best, not only reading the book, but studying it, there will still be some points not clear to you, or there will come up in your practice something that particularly troubles you, and there's where the bee journal comes in. Write exactly what your trouble is, giving full particulars, and then you may expect an answer exactly suited to your case, or at least the attempt will be made to meet your difficulty.

Now as to changing your equipment for an extracting equipment. The question seems to be whether it is worth while to change with so small a number as 8 colonies with their prospective increase. If it should be advisable to change with as many as a hundred colonies, then I should consider it might be advisable to change for eight, even if there should be no increase. Certainly, if you think of extracting after the number is greater, by all means make the change at once. C. C. Miller.

Bees that Succeeded in Escaping from Prison

Phone just rang—"Wells Fargo"—in trouble. From "somewhere" in California to "somewhere" in Montana, "shipment of bees in packages," in transit arrived in Portland with, as described by the phoner, "A million flying, and serious trouble in the express car." Could we help? Could we straighten them out? and would we?

It took but a few minutes to drop these into strong boxes and send them up town to our store, and upon examination found the packages more or less damaged, many of the bees escaping, and whoever gets them will certainly be short some bees and some weight. The trouble seemed to be the wood was too light to hold a nail or tack. These were crated in two bunches of 10, and one of 5—25 in all. Other than the cages being damaged, the bees seemed to be in good shape, none dead, and a fair average Italian.

If the shipper perchance sees this we would suggest in after-shipments to bind each end with pieces of tin, wire, or something so that the wire screens will not fall out and release some of the unhappy captives.

The weather is still backward, cold; bees in poor shape for the coming harvest.

Portland Seed Company.
Portland, Ore. Per Ladd.

Effective Spraying; a Reply to L. P. Tanton page 335, May issue

The treatment of fruit-trees with arsenical or other poisons should be so timed as to minimize the danger to bees, not only for the sake of the beekeeper whose interests should be safeguarded, but also on account of the fruit-grower himself. The latter is dependent upon bees and other insects to carry the pollen from blossom to blossom, and can ill afford to destroy bees—his agents and benefactors as well as the willing servants of the apiarist. There is

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a law in New York State prohibiting the spraying of fruit-trees in blossom, and we have consistently advised delaying poison applications for the codling moth until the bloom has fallen, not only on account of the law but because it is for the interests of all to observe this precaution.

The question raised by Mr. Tanton in the May issue, page 335, as to the advisability of spraying later must be answered in the negative. It is true that the codling moth appears after the spray has been applied, and the "worm" itself even later. Yet careful experiments show that arsenical sprays applied about three weeks after blooming are only, other conditions being equal, about ½ or 1/3 as effective in eliminating wormy fruit. In other words, while later sprays assist, they can not make up for negligence earlier in the season. The mere fact that early spraying with a poison will greatly reduce the percentage of wormy apples means that the arsenical spray must remain in the calyx cup and there destroy a considerable percentage of the caterpillars as they attempt to enter the fruit. For example, in experiments conducted by the writer in 1911, plots sprayed once, twice, and three times bore only 1.93, 1.5, and .86 per cent respectively of wormy apples, while a plot sprayed only once, and about three weeks after blossoming, the time the second application was made, bore 22.2 per cent wormy apples, while the unsprayed trees had 32.79 per cent wormy fruit. These returns were practically duplicated in another orchard, and in both instances the work was done with the same outfit, by the same men, and under practically identical conditions. The one conclusion to be drawn is that a spraying just after the blossoms drop is by far the most effective for the control of the codling moth.

E. P. Felt,
State Entomologist of New York.

A Westerner Comes Back with Some Pretty Hot Shot

I have read with mingled feelings of anger and disgust the article by A. W. Smith (and surprise that it should have had a place in Gleanings). I refer to the part about western honey.

First, as to marketing early. Do the bottlers of Airline honey buy and dispose of western first, or do they let the price at which they can buy have more influence than locality or quality? I know of one large eastern dealer who had the nerve to offer $1.50 per case (24 sections) for a car of fancy and No. 1 western comb that had no granulation, and showed none when sold in the later part of January.

I have no doubt there are western honey-producers selling an inferior honey, and may be there are some who deserve the reputation that Mr. Smith's grandfather earned. But I know there are still some worthy descendants of that old man's class in the East, as I have seen eastern comb honey offered and sold in nice cartons that was yellow, granulated, and in dirty unscraped sections, and put out by an innocent (?) eastern dealer. A western "brick" would be a credit to such as that. Michigan is some "beet" state; many of them have moved west; and if they continue in the beet industry for awhile we of the West who have spent our lives here, and who are careful not to ship a case of comb honey east that would not be full value for money received, have no desire to accept responsibility for them.

In conclusion I might refer to that famous house of glass, and ask our eastern brothers not to be too careless with their "bricks," but I refrain. But I should like to suggest to the innocent eastern buyer that, if he will deal with any of the several western associations they can rest assured they will receive as good comb honey as they can get anywhere on earth—or better—and I want to add, in justice to the many honest western producers, that hundreds of cars of western alfalfa comb are sold to innocent eastern consumers as clover honey.

Berthoud, Col. A. C. VanGalder.

How About these Plans for Comb Honey Instead of Extracted?

Dr. C. C. Miller:—On p. 404 to 407 of the May 15th Gleanings for last year is a resume of four prominent beekeepers' methods of swarm prevention, every one of whom, tho, I suppose is committed to extracted honey. Would not their ways, to one of which Mr. Morley Pettit very much agrees, do for comb honey?

At times a colony according to these methods has at least three stories—i. e., from bottom up: Brood-chamber proper, excluder, honey-super, and on the latter a super containing brood, which had been directly over the bottom super, before the honey super was put on.

What would probably be the result if, instead of the super for honey to be extracted, one would put one or two section-supers, especially if at least one of the latter had either baits half and half, or all baits—baits cleaned out by the bees the year before?

Ulster, Pa. C. Reynders.

Dr. Miller replies:

Something depends on just what is in that deep super on top, and also upon the flow. In any case, I understand that drawn combs are in the top super. If the section-supers contain all baits, they are likely to be filled as soon as the drawn combs above them, but no sooner than they would be if no drawn combs were above. If the section-supers contain part baits and part foundation, with

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a very heavy flow and a very strong colony, I should expect fairly good work in the sections with foundation. With a rather slow flow I should expect the work upon foundation to lag; and with a poor enough flow to have the drawn combs and baits filled and the foundation left untouched. If brood in black combs should be in the top story I should expect the cappings of the sections to be darkened. To be sure, I have read of sections being produced under brood, and nothing said about the sections being darkened; but in the few cases in which I have tried it the sections were always darkened and badly darkened. Of course the case would be different if the brood were in new combs. I'm not sure how it would be if the combs were old brood-combs, but without any brood in them; but I should be afraid of it.

Marengo, Ill. C. C. Miller.

Careful Spreading of Brood to Build up Nuclei Rapidly

Last year from twelve good colonies, spring count, I took 1767 4 x 5 sections of honey and increased to 25 colonies. I already had nearly all the combs I needed. I raised queens by caging the queen in a colony until cells were ripe, then distributing the cells and liberating the queen.

The following method of spreading brood applies to small colonies. Confine the bees by the use of a division-board to the number of combs they can cover thickly. These combs should contain all the brood and as small an amount of honey as possible. Keep one comb of honey only on the side of the hive opposite from that containing the brood. This provides a honey-flow, so to speak, even on days that are too bad for the bees to fly.

Keep the sealed combs always on the outside; and the combs of eggs and unsealed brood in the middle. The sealed brood nearest the time to hatch should always be kept on the outside.

Within a few days every comb in the nucleus will be solid brood and eggs. When the little colony is strong enough, spread the combs and put the feeder comb, which is now nearly empty, in the middle, putting another comb of honey in its place at the outside. If the colony is not strong enough, put the empty feeder comb next to the division-board, and within a few days it will contain some brood and may then be put in the middle. By the time there are five combs of brood the feeder comb should be in the middle, if the weather is not too cold.

Keep a sheet of black roofing paper on the hive, as the bees will breed a little faster. It is really surprising how soon a two or three frame nucleus will be built up to a full eight-frame colony. The plan means some trouble, but it is worth while if one is short of feed. A two-frame nucleus that I had last year produced 81 finished sections, and a three-frame nucleus 104. To be sure the season was two or three weeks late and the honey-flow extra good.

Vincent, Ohio. W. S. Basim.

European Foul Brood Entirely Wiped Out

Last season R. F. Holtermann wanted advice from some one who had stamped out European foul brood after it had spread among his bees. I have gotten rid of this disease after a virulent and wide-spread infection. I have not seen a cell of disease in my own locality for five years. I know another locality where the same has been done. The treatment in both cases was Alexander's, in conjunction with my own—the removal, at night, of all infected colonies, as soon as discovered. The quarantine yard should be two miles from the nearest bees, and the diseased colonies should be treated as soon as possible after removal.

I find in my inspection work that the disease is much more virulent in some places than in others. In the worst form, a few colonies will show disease again after the Alexander treatment. If strong, these colonies are treated again, precisely as at first; if weak, they are destroyed and the combs melted. A full account of my experiments and final success may be found in back volumes of Gleanings, and in the report of the Illinois State Beekeepers' Association for 1915. C. F. Bender.

Newman, Ill.

Book-keeping versus Beekeeping

Dr. C. C. Miller: — I have been persuaded to take a course in book-keeping, and sell my bee business. I have started the course and don't think I shall like it, as it is too confining. I have 50 colonies of Italian bees and equipment. I have studied the business, and like it, and have made a success of it so far. I hate the idea of giving up a business that I have chosen as a life pursuit, and have fallen in love with, too, and follow something that I am afraid I should never like, and I am writing to you for advice.

Do you think I can make as much from 100 or 150 colonies of bees as I could by keeping books at the average price of bookkeepers? I think I can manage 150 colonies all right in several out-apiaries, as there isn't enough pasture to support that number in one yard. F. W. Gravely.

Richmond, Va.

It is a very difficult thing to advise. It is hardly possible to compare the income of the average book-keeper with that of the average beekeeper, for the average book-

HEADS OF GRAIN FROM DIFFERENT FIELDS

keeper has his income entirely from his book-keeping, while the average beekeeper has only part of his income from his bees, and that, generally, the smallest part. If all who keep bees were to be shut off from all other sources of income except their bees, I'm afraid the average income of the book-keeper would exceed that of the beekeeper. Then, too, there is the possibility, if not the probability, that you would be more than an average book-keeper, and have a good deal more than the average income. So if you measure the case in cold figures, it is perhaps safer to prefer the books to the bees. And that's the way a good many would measure it, the only question being, "Which has the most money in it for me?"

But your letter indicates that you would view it from a little different standpoint. You have practically said: "The confinement of the counting-room is a life of drudgery, the only enjoyment I would have would be outside working hours, while working at the bees is itself a delight, allowing me to enjoy all the waking hours of the twenty-four." To that might be added that the sleeping hours of a man who has been working in the open air at something with which he is thoroly in love are likely to be more restful than those of a man who has been spending the working hours of the day puzzling over a set of account-books.

So, setting aside the matter of income, there is no question as to which life you prefer; and the problem is reduced to the one question, "Can I make a living at keeping bees?" I can't tell. Yet if others can, why not you?

For myself, I think I should leave book-keeping to those whose tastes run that way, and take my chances with the bees, even if I couldn't wear quite so good clothes.

C. C. Miller.

Soaped Fingers Easily Cleaned

Mrs. Allen, page 291, April, speaks of the awkardness of gloves in the beeyard. I would suggest that she use "soap" gloves, perferably made with carbolic soap. The hands should be soaped with a wet cake, rubbing it in until it dries. It may feel a little unpleasant at first, but one soon forgets it. One's fingers are not all thumbs, and the "propolis and stuff" roll off quite easily when washing if a good job of soaping has been done; and I am sure one gets very few stings thru the carbolic gloves.

Chas. Bowden.

Brantford, Ont.

THE BACKLOT BUZZER.

BY J. H. DONAHEY.

"Leave it to the bees," says ma, "when it comes to doing their bit for Uncle Sam. They ain't playing croquet, lawn tennis, and billiards. No, sir, ee. They're bringin' in the crops."

Ye shall hear of wars and rumors of wars: see that ye be not troubled; for all these things must come to pass, but the end is not yet. . . He that shall endure unto the end, the same shall be saved. And this gospel of the kingdom shall be preached in all the world for a witness unto all nations; and then shall the end come.—MATT. 24:6, 13, 14.

MY good friends, the passages I have quoted above are being read and considered just now more than ever, perhaps, since the world began. Mrs. Root often asks the question why it is that God permits such foolish destruction of life and property to go on and on year after year; and I presume she is not by any means alone in wondering why a just and righteous God *permits* this thing to go on. Now, I cannot for a moment think, with my feeble understanding, and perhaps in some measure my feeble faith, that I can fully explain this thing; but I can point out to you, as I pointed out to Mrs. Root, the *good* that is coming as a consequence or as a result of the war.

First and foremost, the liquor business has been given a "jolt," since the war started, unlike anything else since the world began. One of the first things that transpired after picking men to go to war was to consider the matter of physical health; and it did not take very long to decide that alcohol in any form (beer, wine, brandy, or whisky) was not a help to either brain or muscle; and poor heathen Russia, as some of us looked at Russia, was the first to adopt prohibition on a larger scale than the world had ever heard of before. Our own nation, the United States of America, has been blind and stupid ever since our own civil war, in consenting to receive *revenue* from the liquor-traffic. It was not very long ago that the great city of Cleveland was insisting that they could not provide the money to keep up the public schools without the revenue from saloons, in spite of everything our churches, our college professors, and the teachers in our common schools could say; and not only the farm papers, but the religious papers, and papers and periodicals of every sort, are urging the conservation and production of food. Millions of dollars' worth of food have been dumped into the slop-pail every year, so we are told; and not only farmers but everybody who has a back yard is enjoined to grow something that will help keep us from starving, and especially keep in good health the soldiers we send out.

A while ago the brewers, in pleading for the continuance of their business, told how many bushels of grain they bought of the farmers, and said that the farmers would not have a market for their grain if their business was closed up. Well, of course they greatly exaggerated the statement, as they usually do. I cannot recall the figures, but it is something like this: They claim that they bought of the farmers, and paid cash, to the extent of something like *sixty millions of bushels of grain.* Somebody said later, *twenty million* bushels would be nearer the truth. Well, just now we are quite willing and glad to take their own figures. If they have been using sixty millions of bushels of grain that was not only wasted, but a hundred times worse than wasted, why not stop the whole thing and let this enormous amount of grain be used for food and thus help the shortage on food.

In our last issue I told you how the brewers were pleading to have our nation pay them for their losses in case prohibition came; but a great number of distilleries in dry states have already adopted other business; and even our physicians (and they have only recently come around) say this shameful business has kept on because it was fathered by the United States of America. As an illustration, see that little item in our last issue about the missionary who could not get at his stock of bibles until they had unloaded 54,000 packages of liquor—liquors probably sent by the United States to a heathen land in the same ship with a little box of bibles and testaments belonging to a missionary.* In the Old Testament we are frequently told that the wrath of God waxed so hot at times when his chosen people would not listen that a terrible punishment followed to wake them up

* In connection with the above, see the following which I have just clipped from the *Sunday School Times* of May 5: "On January 7, 1917, a member of the Woman's Missionary Society told how a certain tobacco company, with a plant in China, have expended $5,000,000 in the past two years to fasten the cigarette habit on every man, woman, and child in China. The Chinese have freed themselves from the opium habit forced upon them by Great Britain, and now there is this company with its packages distributed gratis. It is said that with every dry-goods purchase made a free package of cigarettes is enclosed. Cannot something be done to awaken China to its peril, before the cigarette gets its strangle-hold?"

—not only wars but famines and pestilence; and when the loving Father finally decided that nothing but this terrible war would wake up the United States, is it unreasonable to think that he said, if I may use the expression, "Let the war come"? And, by the way, altho I have not the figures at present, I think it has been stated that more people go down to untimely graves every year by intemperance than have ever been lost so far in one year of war. Just now while I write, the question is being debated as to whether the best "preparedness" the United States can adopt is to get out of the liquor business, or at least have prohibition while the war lasts. See the article in our last issue by our good friend Attorney Smythe, of Bradentown. Well, just recently another tremendous reason has loomed up, for the Department of Agriculture urges vehemently the growing of something that will *benefit* humanity instead of destroying it.

Well, the war is bringing about the things mentioned above; and, what is more, it is urging people to get up early and work late in making the unsightly back yard a place where good and wholesome food can be grown. Even the schoolchildren and all other children, and old men and old women, are getting the craze to study agriculture, and learn how to keep our people from starving—or, better still, how to send food to the starving in war nations. Girls and boys in their teens, and girls and boys that nobody ever thought as being "extra smart," are astonishing their parents and surprising the world by what they have done in growing corn, potatoes, and tomatoes on a little patch of ground—say a sixth or a tenth of an acre. Down in Florida, where one can grow good and wholesome food *every day in the year on every square rod of ground in the state,* the people are getting particularly alive and on the alert. I have told you on another page of what an old man like myself, going on toward 78, may do. Two crops of potatoes in 180 days on the same ground, and good fair yields of extra nice potatoes at that, can be grown. I cannot think of anything except this war that would arouse such enthusiasm for "reducing the high cost of living." The Department of Agriculture has sent out a plea to have as many as possible start beekeeping in order to save every pound of honey that has been going to waste, especially as sugar continues to mount up. The war is stirring up the whole wide world to a newer and greater activity than was ever known before. Not very long ago there was big talk about "the great army of the unemployed." What has become of that army? Another thing, in the city of Cleveland not many weeks ago there was a good deal said in the papers about elderly men and women who were quite capable, but could not find anything to do. Now, these old fellows like myself have discovered that they can not only make garden, but, like the title of a book I sent out over thirty years ago, can learn not only "what to do" but "how to be happy while doing it." By the way, just about a year ago our folks told me that my book was not selling as fast as it used to do, and I gave it an editorial write-up, as you may remember. The book is all about gardening, chickens, etc. Well, since this back-yard garden craze has started, every copy of the book, both paper-bound and cloth-bound, has gone off like hot cakes. When the book was sent out we printed ten thousand copies, but bound and put covers on only a part of them; but just now we have put those printed sheets in the bindery, and a new lot of books will soon be out.

Well, dear friends, what I have just dictated above is only preliminary to something of still greater importance. Thru the activity of the Y. M. C. A. and other religious bodies, more bibles and testaments are being sent out and eagerly read and appropriated than at any other time since the world began. Yes, I am told that the soldiers on both sides are reading their testaments and holding prayer-meetings, and then, perhaps only a few minutes afterward, go out into the business of killing each other.

While I dictate these words on the third day of May we are told there is quite a wave of protest from the common soldiers themselves against this business of killing each other when the larger part of them have no idea or comprehension as to the reasons *why* they should do so.

Yesterday it was my pleasure to listen to John R. Mott, the International Secretary of the Y. M. C. A. Now, I shall have to confess that I did not *fully* understand what "international" meant until I heard this great and good man speak. He stands at the head, or at least nearly so, of the Y. M. C. A.'s of the *whole wide world.* May God be praised that the Y. M. C. A. now covers *almost* the whole wide world. Well, here is another wonderful fact that we praise God for. Every nation on the face of the earth, by some blessed and wonderful arrangement, favors the Y. M. C. A.; and their secretary, Mr. Mott, has a passport, if I am correct, into every nation of the world, notwithstanding any war regu-

lations. He has been permitted to visit the prisoners on both sides of every line of battle; and I was almost dumfounded when he announced in his talk that something like *seven millions* of men are held as prisoners of war. These seven million men must be fed; and I think they *are* fed, thank God, after a fashion. Mr. Mott did not tell us very much about the "feed," but he did tell us of the arrangements for fuel and shelter; and he did tell us, further, that this great army has comparatively little to do, and they are herded like swine in great pens. Now, do not take it for granted that I am pitching into any particular nation. If I am correct, the condition of the *prisoners* in all the fighting nations is not perhaps very much different. With not only hundreds of thousands but *millions* it is an exceedingly hard matter to give them *all* comfortable quarters. There were in many cases no hospitals for the sick. He found sick men crawling around on the ground because they were not able to stand on their feet. He found them exposed to cold and rain because the shelter was inadequate; and he came back to America petitioning for five millions of money to erect hospitals and sheltering-places for these millions of prisoners—prisoners belonging to all nations, mind you. The Y. M. C. A. does not recognize any state or nation above another. Their mission is to lend a helping hand to every suffering child of humanity. The millions of dollars were to be divided up. He told us how much Ohio was called on to give; and, if I remember correctly, they wanted Cleveland to give *one hundred thousand dollars*. To start out with, a man who sat near the speaker offered ten thousand dollars. Perhaps I should explain to you that this audience of perhaps two or three hundred were representative men, or patrons of the Y. M. C. A. of Ohio. They came from every part of the state. After the first ten thousand dollars was offered, another large gift followed. Then two men each gave five thousand; and in *just a few minutes forty thousand dollars* was subscribed to make life easier to the prisoners of war. As an example of the way in which the Y. M. C. A. is favored in all lands, in one nation where Mohammedanism is the prevailing religion he was informed that the Y. M. C. A. men under him could go into the prisons and everywhere else, but that they must not talk about Jesus. They might do whatever they liked to help the people and teach them, and minister to their wants and needs, but they were not at liberty even to mention the name of our Lord and Savior Jesus Christ. Mr. Mott said that he consented to the handicap, but replied something like this:

"If our men cannot *talk* the gospel of our Lord Jesus Christ, you certainly would not object to their living it. We want to show your people what the Lord Jesus does for a man, even if he does not mention his name, and we do this and consent to the terms."

Now, friends, that thing strikes home to me. For some months I have been striving day by day to let my life, my words and actions, and all my dealings with my fellowmen show forth that I am an humble follower of the lowly Nazarine who "was despised and rejected of men, a man of sorrows, and acquainted with grief."

There was still another point brought out, in illustrating how the war is going to elevate humanity. In times past, almost any man who volunteered was accepted; but not so at the present day. Great numbers who come forward are rejected. Each man is carefully examined by an efficient surgeon. It does not pay to go to the expense of sending a man to war and then have to go to the further expense of treating him as an invalid. If I am correct, no man is accepted who has any tendency toward tuberculosis. Well, tuberculosis, or "the great white plague," is a bad thing; but there is a worse one still that afflicts men and boys. The speaker said that, altho Canada had lost a great lot of men by sending them to war, they have lost a still larger number of men by a contagious disease that he did not mention; but he made it pretty plain that it was syphilis and kindred things along that line. In adopting prohibition a great blow will be struck at various diseases peculiar to the "tenderloin" district; and it is just beginning to creep out that the greater part of the men and boys afflicted with these terrible maladies contracted the foul disease *when they were drunk*. In fact, I know of at least one man who caught the infection while he was so drunk he hardly knew what he was doing. Right here in Ohio I have been told by a good friend who is an officer in the Y. M. C. A. ranks that prostitutes follow the soldiers by the carload, just exactly as the saloonkeepers do in the vicinity of where the Ohio regiments are quartered. The saloonkeepers, however, received a cool greeting, and perhaps were a little astonished to be told that soldiers in the year 1917 do not drink beer; and I hope, too, that these poor lost women were informed that the soldiers of the present day take no chances, *especially* those soldiers who have *wives* and *children* away back in the "home land." May God speed the flood of righteousness and

temperance that seems to be coming, even if it does come largely thru the exciting times of war; and may God hasten the time when the number of people who are "hungering and thirsting after righteousness" in this great wide world shall wake up and bestir themselves to the opportunities that are now offered. If you cannot do any better, go out and make garden, when you lay down this Home paper, so as to "feed the hungry."

Just one more thing that this terrible war is doing for humanity as perhaps nothing else could do. It is getting the nations of the earth better acquainted and more in touch with each other than anything that has ever transpired since the world began —that is, if I am making no mistake. The children of the whole wide world are learning more geography than ever before. Even heathen lands, or what we were wont to call heathen lands, are catching on to the great achievements of science, art, and literature. In the matter of transportation and communication the world is being transformed; and last, but by no means least, the gospel of Christ Jesus is permeating everywhere, notwithstanding what the powers of evil are in like manner doing. This same Y. M. C. A. we have been talking about in this Home paper is getting everywhere, as I have explained; and may God be praised for the good men who are not even professing Christians for the way in which they are coming forward with their hundreds and thousands; and I am not sure but there has been one contribution of a million dollars to help the Y. M. C. A. extend its helping hand to every child of humanity, no matter who nor on what spot they are located.

"WHO IS MY NEIGHBOR?"

In Stray Straws in our April issue Dr. Miller asks for the *outcome* of my trouble with the express company as given in Our Homes for March. Why, bless your heart, doctor, I supposed the outcome was sufficiently evident as I left it. When I began to recognize the fact that express companies are neighbors, like everybody else with whom I have dealt, I asked myself the question, "What would Jesus do were he in the chicken business, under the circumstances?" The answer was so plain that I felt ashamed to think of making out a bill for damages for a couple of chickens, especially when I started them off in that very pretty but flimsy crate made more for a pretty exhibition at fairs than to stand a shipment of over a thousand miles by express. No doubt the express companies have their faults like the rest of humanity. But is it not likely true that a lot of us are *also* faulty in handing them our stuff poorly prepared for a long distance? "Thou shalt love thy neighbor as thyself." Would it not help matters if we could all exercise a little more charity for even the express and railroad companies?

HEALTH NOTES

OLEOMARGARINE AND REAL BUTTER.

My article on page 301 calls forth considerable protest, principally because, as I understand it, the clipping I gave did not make mention of the fact that the tax on oleo was only when it was *colored* so as to imitate butter; and I shall have to confess that, when I prepared the article for print, I did not know that this tax of ten cents a pound was only on the colored article, and that the tax was laid in order to prevent fraud. The only point made was that a very good substitute for butter could be made from the oil from peanuts, cotton seed, etc., or at least it was largely from these sources, and that the butter we had been buying, supposed to be so made, was very good and wholesome. Perhaps I should add right here that after a more extensive use of this margarine, as they call it, both Mrs. Root and myself decided to pay a little more for real butter. If the two kinds are just alike, the white and the yellow, I should certainly take the white at the lower price. In the advice to the women in regard to boycotting butter and using oleo there was no mention of there being two kinds of oleo —the colored and uncolored. To sum it up, I do not see why there can be any reason in the world against using oleo at a lower price providing it is of a different color and is never sold to deceive people and make them think it is pure butter. And I do not just now see why anybody should complain of a ten-cent tax or even a higher one while an attempt is made to palm it off on an unsuspecting and hungry public for real butter. I believe we have had some recent reports from the Government, to the effect that cows' butter has more nutritive value than

oleo; and why not use peanut butter, which is good and wholesome, and I suppose it can be bought almost anywhere for about a third the price of real butter?

Since dictating the above I find the following advt. in the Cleveland *Plain Dealer*:

Eat nut margarine; contains no animal fats; sells for about half the price of butter. The Brundage Co., 604 Broadway, Distributors.

From the above it would appear that there is a "margarine" made of nuts; and there is also another sort, made of animal oils. Now, whatever is made from the oil of nuts must be nutritious and wholesome; but I think it should be sold under its proper name, and recognized as an honest article of food. So far as coloring it to make it represent butter, or to look like butter, this is, of course, a fraud, and should be punished by a heavy penalty. Let me repeat what the *Sunday School Times* has said: "Deception is always wrong," and especially is it wrong to use any kind of deception or anything misleading in any way in articles of food for human beings.

Later.—Since the above was written we have found that our grocery here in Medina sells "nut margarine," and we like it very well. It looks so much like our brick candied honey that neither Mrs. Root nor I can tell one from the other except by tasting. On the outside of the package we read: "Nut margarine, coco-nut brand oleomargarine. We brand this product oleomargarine to comply with the law; but it is absolutely free from animal fats." So far as I can judge just now it seems to me to be very good and wholesome as an article of food. The retail price is 30 cts. per lb., while butter is about 45.

HIGH-PRESSURE GARDENING

CHILDREN'S GARDENS; ALSO SOMETHING ABOUT GARDENS PLANNED AND WORKED OUT BY OLDER PEOPLE.

Of course our readers know already that I am always interested in gardening—especially nice gardening; and while the matter was up about gardening in the back yard, etc., last summer I was called to be one of the judges in the city of Cleveland in a sort of garden festival. The invitation came from the *Plain Dealer,* and while there Mr. J. W. Love, one of the *Plain*

A backyard garden belonging to J. H. Hellwig, Cleveland, Ohio. Courtesy *Cleveland Plain Dealer.*

Dealer staff, took me around to see the fine gardens in the city. I was so much impressed with one of them that I asked for a picture, and take pleasure in presenting it herewith to our readers, as it illustrates the possibilities of a garden in the back yard. Perhaps few of our readers will be able to produce so enchantingly beautiful a garden, but it may serve as an incentive to go and do likewise. I give below a letter of explanation from my good friend Love.

Dear Mr. Root:—The picture I sent you of the garden I believe was that of Mrs. J. H. Hellwig, whose rose-garden we saw during the morning of the day we looked at gardens and judged the festival. The reason you failed to recognize the place is probably because the photo was snapped from the top of the back porch.

Mrs. Hellwig's garden was really kept by her husband, an Austrian of the newer emigration. He impressed me as having had professional training.

Very sincerely yours,

Cleveland, O., Oct. 12. JOHN W. LOVE.

TWO CROPS OF IRISH POTATOES ON THE SAME GROUND, IN ONE WINTER.

On page 391 of our last issue I mentioned the fact that we commenced selling the new crop of potatoes on March 27. From that time on to the 24th of April, the day we left for our northern home, I carried up to our groceries in Bradentown from one to two bushels each day in half-peck baskets. For some time they brought a dollar a peck; but about the middle of April other potato-growers who grew them in the ordinary way, without the use of hotbeds or cold-frames, as I have described, began to bring in potatoes also, and the price went down to 75 cents a peck, or 40 cents for a half-peck basket. Well, when they got down to 70 cents a peck I think that for one day I got only 60 cents a peck. This was because I advised putting the price down because I wanted to get all of my potatoes disposed of before going back north. Now comes in a point right here that we want to stop and consider a little. When my good friend Burnett said they were so well filled up with potatoes that I had better not bring any more for a while, I told him I must get my potatoes, that were ready to dig, out of the way before I started home on the 24th. I advised that, if they did not go off readily at 70 cents a peck, he might make the price 60. Then he said something like this:

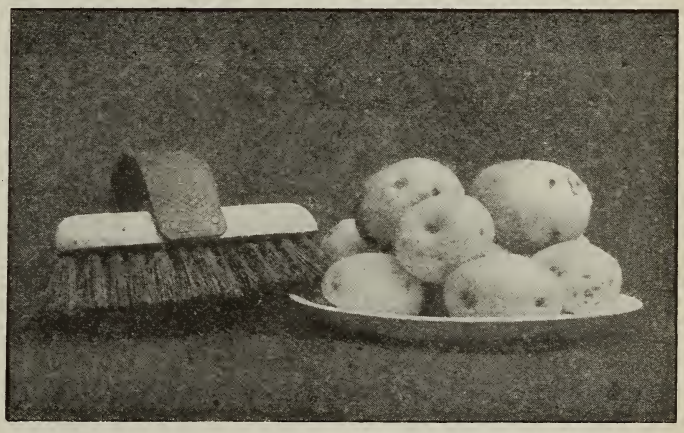
"Mr. Root, your idea of making potatoes cheaper for folks who have not much money is all right and good; but there are also many people who have not very much money who are growing potatoes. They paid a high price for their seed, and have worked hard, and your cutting prices because you are going away may prove a hardship to them. About how many potatoes will you have if you want to sell them by Saturday night?"

I replied that perhaps there were ten or twelve bushels. Then he arranged as to how many bushels I should bring him each day. But when Saturday night came there was a great long row of little half-peck baskets in the store, and not much call for them; but as we did not leave until Tuesday I came up early Monday morning, and, considerably to my surprise, there was not a potato in the store.

Permit me to suggest right here that there are a good many well-to-do people in and about Bradentown—people who will order potatoes perhaps without even inquiring what the price is. Now, these people did not mind a dollar a peck, while a dollar a peck was quite a boon to the small farmers with their land unpaid for, and who were working perhaps twelve or fourteen hours a day to make both ends meet.

Since I have been writing these papers on high-pressure gardening I have several times been rebuked for asking and accepting such high prices for garden-stuff. Let me mention right here that our potatoes were all planted by hand and with hand tools. They are all dug by hand. In fact, that was the quickest and easiest way to dig them. There was not a potato in our whole crop that was scarred or marred by the cut of a hoe or fork. In the Bermudas, that I visited in 1898, in growing the celebrated potatoes they make the ground so mellow that a workman can in many places plunge his naked hand down into the soil clear up to the elbow. Well, it is a good deal so in our Bradentown garden. This being the case, my friend Wesley reaches down into the mellow soil and pulls out the potatoes with his bare arm quicker and cheaper than he could get them in any other way. Then they are well washed and put in bright new half-peck baskets. When I am taking them out of my little auto and carrying them into the grocery, the women going along the walk in front of the store often stop and exclaim, "What beautiful potatoes!" Then they follow me right in and order them tied up and sent to their home almost as quick as they can be unloaded. My potatoes have earned a reputation down in Florida, while those brought in by the farmers, without being sorted or washed, have but little chance of sale until mine are sold and out of the way. I mention this to show you the importance of putting up garden-stuff so that it will *look* attractive. Our potatoes were nearly all Red Bliss Triumph.

Let me now put in a word in regard to "demand and supply" of honey. My good neighbor, Mr. Abbott, who has over 1000 chickens, and more than half of them are laying hens, delivers his eggs to families; and as he is also something of a beekeeper he carries honey along. Well, he has been selling a 3-lb. jar of honey for 25 cents—that is, for the honey alone, for he gets the jar back on the next trip. Another beekeeper living across the river gets 10 cts. per lb., or 30 cts. for the contents of the fruit-jars. Another friend, Mr. Reddout, from York State, brought a lot of honey from his northern home. This honey was a very fine article of almost pure white-clover honey. He sold only 2 lbs. for a quarter. I remonstrated a little with Mr. Abbott for selling it so low. He replied that the people had got used to having 3 lbs. for a quarter, and they would not pay any more. The other neighbor, who had been getting 10 cents, said he could, by taking a little more time, get 12½; but he had to stop and explain and argue the matter; whereas at an even ten cents the honey went right off, and he could get home quicker and get to work. Perhaps I should explain that Mr. Abbott's and Mr. Reese's honey was produced in Florida, and probably gathered mostly from scrub palmetto. Well, I have something else to add.



The sample of potatoes that sold for a dollar a peck during April, 1917.

One day when I was carrying some potatoes into one of our groceries the grocer held up a glass jar of the "Airline" honey, put up by the A. I. Root Co., Medina, Ohio. This honey was 25 cts. for *one* pound; but it was put up in very attractive style, and a little book about honey for cooking went with it. The honey was purchased from us by a wholesale grocery company in Tampa, and they sent our Bradentown grocer a sample case to try. Now, in the case of both the potatoes and honey in the above incident, the way in which they were put up and presented to the public had much to do with the price received. The potatoes we offered were almost all, if not every one, perfect. There were no cut or worm-eaten ones; but when we bought some old potatoes shipped down from the North, Mrs. Root says she has been sometimes obliged to cut off and throw away almost half of them. There would be cuts of the hoe or fork—holes cut in them by wire-worms or grubs, or scab, or something of that sort. But in putting up my bright clean Red Triumphs I sorted out every potato having a bad spot in it; and Mrs. Root cut out the spots and boiled them up for the chickens. I might mention here that all potatoes that were deemed too small for even seconds were also given to the chickens. In fact, Wesley, when digging by hand, saves every little potato, even tho it be not much larger than a grain of corn. Perhaps I should mention here that after Wesley digs a hill of potatoes he gathers up the tops and buries them out of sight right in the place where he took the potatoes out. This leaves the ground clean of trash, and oftentimes we plant another crop of potatoes or corn in the valley between the rows the very day and sometimes the *very hour* the potatoes are taken out; and as this spot between the rows had a dressing of fertilizer when the potatoes were half grown, the new crop comes on with "a good send-off."

Perhaps it may be well to tell you that the potatoes I carried up to the two groceries in Bradentown during the month of April amounted to something like a hundred dollars, besides what I got from the first crop before the frost killed them. With the brush shown in the picture above, the new potatoes are very quickly made ready to be dumped into boiling water.

SOMETHING ABOUT CHICKENS.

I told you in our last issue about how those little potatoes satisfied the growing chicks and started the adult hens to laying. By the way, that brood of 80 chicks became

so fond of those little potatoes that they would chase each other all over the yard for them. In fact, they acted very much with the potatoes as they would with angleworms or fresh meat ground in a bone mill. And this reminds me that I have something to tell you about the 80 chickens I mentioned in our last issue. Up to the age of eight weeks I have not lost a chicken out of the 48 that came from the incubator, and the 32 that came from three sitting hens. When they were just about eight weeks old I found one chick one morning on the ground under the roost dead. When I left Florida the 79 were 12 weeks old, and not a chick had been lost. I mention this because there have been reports going around, to the effect that one cannot raise chickens in Florida; or that if you ship chickens from Ohio down to Florida they would die because they were not used to the climate. Well, the fact is I have been shipping chickens more or less, and ducks too, from Ohio to Florida, and *vice versa,* and have never had a bit of trouble. The chickens are happy and well in either place if you love them and give them care; and my experience is that Florida, *certainly* in the winter time, is a better place to grow chickens and get eggs than here in Ohio.

TEMPERANCE

KEEPING OUR SOLDIERS AWAY FROM DRINK, AND DRINK AWAY FROM OUR SOLDIERS.

Below I make three clippings from the second page of the *Ohio Messenger,* from a letter by my long-time friend Mrs. Florence D. Richard. Here is the first clipping:

Our grain must not be used to destroy but to build up; and our soldiers must be kept from Rum's destructive influence.

Here is No. 2:

"A drop of ink makes millions think."

And here is the last:

Send a message worded something like this to—
Woodrow Wilson,
President of the United States:
For God's sake, for humanity's sake, for the nation's welfare, I earnestly and urgently appeal to you to use your influence to prohibit, during the war at least, the manufacture and sale of intoxicating liquors thruout this nation, which traffic causes waste of more than two billion dollars yearly, and is destroying soul, mind, and body of drinker.
If the capital dry, why not the nation?

GOOD NEWS FROM THE GREAT CITY OF CHICAGO

We clip the following from the Cleveland *Plain Dealer* of May 9:

CHICAGO SALOONS CLOSE; TWO HUNDRED LICENSES LAPSE WITH PROHIBITION PROSPECT.

Two hundred Chicago saloonkeepers are voluntarily preparing to allow their license to lapse and withdraw from the business because of the prospects of a dry nation during the war, according to a report today to the city council finance committee from the controller's office. These licenses, once allowed to lapse, may not be renewed.

The annual loss of revenue to the city will be $200,000.

I do not know who took the responsibility of adding the concluding paragraph, nor who took the responsibility of suggesting that it would be no loss at all to the great city to dispense with its 200 saloons. May God help him to open his blind eyes to what is going on in the great cities of the West in spite of the little loss of the saloon revenue.

SHALL WHISKY OR BEER HELP TO PRESERVE THE INTEGRITY OF OUR NATION?

We clip the following from the *Sunday-School Times* for May 5:

If our national life is at stake, our soldiers and sailors are the prop upon which such a life rests, and every drunken or drinking member of our armed forces weakens to that extent our national prop. The statement seems to me to be axiomatic. If so, then it is unthinkable that our great country, while in a life-and-death struggle, should permit one drop of whisky to go into the hands or mouths of its fighting forces. We should, therefore, have by all means a law prohibiting, under severe penalties, selling or giving intoxicants to any soldier or sailor of the United States.

But a sober army cannot long endure if it is dependent upon a drinking or drunken population.

BOOZE AND PROSTITUTES.

The *Methodist Temperance Sheet* for May 14 contains the following:

By advice of the General Medical Board, the Government is planning to estabish a restricted zone about all military commands in order to keep prostitutes and alcoholic beverages from soldiers.

Our readers have noticed, perhaps, the reference made to the above in our Homes for this issue. I was not only surprised but pleased to see that the Medical Board has put the two together as twin evils following the army. May God grant that the above restriction may be carried out to the very letter.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for the department cannot be less than two lines, and you must say you want your advertisement in the classified columns or we will not be reponsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

Amber honey in new 60-lb. cans.
Van Wyngarden Bros., Hebron, Indiana.

FOR SALE.—To the highest bidder, a limited quantity of Michigan's best white extracted honey, in 60-pound tins.
A. G. Woodman Co., Grand Rapids, Mich.

HONEY AND WAX WANTED

WANTED.—Section honey.
J. E. Harris, Morristown, Tenn.

WANTED.—Comb and extracted honey at jobbing prices. Nat. Honey-Prod. Asso., Kansas City, Mo.

WANTED.—White extracted honey. State price and quantity. D. H. Welch, Racine, Wis.

BEESWAX WANTED.—For manufacture into Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

WANTED TO BUY a quantity of dark and amber honey for baking purposes.
A. G. Woodman Co., Grand Rapids, Mich.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up, and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

WANTED.—Extracted light and amber honey of good body and flavor from any state in the Union. Send sample with lowest cash price.
M. E. Eggers, Eau Claire, Wis.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how mucch you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS that will tempt the buyer to purchase your honey. Neat, attractive labels at right prices. Samples Free.
Liberty Pub. Co., Sta. D, Box 4-E, Cleveland, Ohio.

HONEY LABELS. — Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Ct.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—150 hives, 10-frame, finely equipped. James McKee, Riverside, Cal.

THE PERFECT Bee-Frame Lifter. For descriptive circular address
Ferd C. Ross, Box 194, Onawa, Iowa.

Root's supplies at Root's prices. Special offer on 3-frame nuclei for the season.
L. D. Martine, 206 E. Jefferson, Louisville, Ky.

We carry a complete line of bee-supplies. Ask for our bee-supply catalog. Let us quote you on your requirements. Deroy Taylor Co., Newark, N.Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg., Co., Paris, Tex.

FOR SALE.—Four-frame Root automatic reversible extractor in good condition, $22.
Elmer Gressman, Hamburg, N. Y.

FOR SALE.—100 nearly new supers, 4¼ x 4¼ plain and beeway. A bargain.
Ralph Hibbard, Calcium, New York.

Northwestern beekeepers can now get Root's supplies at catalog prices near home and save time and freight; also Italian bees and queens. Geo. F. Webster, Valley View Farm Apiary, Sioux Falls, S. Dak.

THE ROOT CANADIAN HOUSE.—73 Jarvis St., Toronto, Ont. (note new address). Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—50 standard dovetailed ten-frame hive-bodies, Root make, including frames at 60 cts. each, F. O. B. here; 20 Root make Danzenbaker hive-bodies, including frames at 45 cts. each, F. O. B. here. All painted, good as new, used three years.
Henry A. H. Forshaw, Monsey, N. Y.

WANTS AND EXCHANGES

WANTED.—Second-hand Novice extractor cheap for cash. E. J. Wilcox, Rt. 1, Kane, Pa.

WANTED. — Second-hand honey-extractor, two-frame. Leon D. Thayer, Cummington, Mass.

Wax and old combs wanted for cash or to make up on shares, beekeeper to factory direct.
J. J. Angus, Grand Haven, Mich.

FOR EXCHANGE.—16 D. 10-fr. hives with 1 to 2 supers good as new, for bees by the pound. Root make. H. McElhany, Vinton, Ia.

WANTED.—Shipments of old comb and cappings, for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered.
The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1917 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

GOATS

MILCH GOATS.—"Profit and Pleasure in Goat-Keeping," pronounced by experts the best goat book, regardless of price: profusely illustrated: by mail, 35 cents. Fred C. Lounsbury, Plainfield, N. J.

FOR SALE.—One registered grade goat, fresh in June; good milker. Aug. Miller, Bareville, Pa.

PATENTS

PATENTS SECURED or all fees returned. Patents sold free. Read "Patent Sales Dep." of our 200-page Guide Book, FREE! Send data for actual free search. E. E. Vrooman & Co., 834 F, Wash., D.C.

ATTENTION—PATENTS. You will like my easy plan. Write for free booklet.
C. L. Drew, 3 Victor Bldg., Washington, D. C.

POULTRY

S. C. Brown Leghorns; stock, eggs, baby chicks. Circular. H. M. Moyer, Boyertown, Pa.

REAL ESTATE

PROFITABLE LITTLE FARMS IN VALLEY OF VIRGINIA, 5 and 10 acre tracts $250 and up. Good fruit and farming country. Send for literature now. F. H. LaBaume, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. Seagraves, Industrial Commissioner A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, 1159 DeWolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Cortlandt St., New York.

When it's GOLDENS it's PHELPS. Try one and be convinced.

Italian bees and queens. Send for circular. Ira C. Smith, Dundee, Oregon.

FOR SALE.—Full colonies fine Italian bees, low price. L. H. Robey, Worthington, W. Va.

FOR SALE.—Golden Italian queens. Untested queens 60c each. J. F. Michael, Winchester, Ind.

FOR SALE.—Italian queens. See large advertisement elsewhere. H. B. Murray, Liberty, N. C.

Queens for July and later delivery. No more rush orders till July 1st. J. E. Wing, 155 Schiele Ave., San Jose, Calif.

Untested Italian queens for sale—1, $1.00; 3, $2.75; 6, $5.00; 12, $9.00. Satisfaction guaranteed. F. L. Johnson, Mt. Airy, N. C.

FOR SALE.—E. E. Mott's strain of Italian queens 90c each, $9.00 per doz. Send for list. Earl W. Mott, Glenwood, Mich.

"She-suits-me," bright Italian queens, $1 after May 15. Orders booked now. Allen Latham, Norwichtown, Conn.

Try ALEXANDER'S Italian queens for results. Untested, each, 75 cts.; 6 for $4.25; $8 per dozen. Bees by the pound. C. F. Alexander, Campbell, Cal.

Italian Bees and Queens, Root's goods, and Cary hives. Catalog mailed on request. F. Coombs & Sons, Brattleboro, Vt.

Tested leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10.00 per dozen, return mail. A. W. Yates, 3 Chapman St., Hartford, Conn.

Vigorous, prolific Italian queens, $1; 6, $5. June 1. My circular gives best methods of introducing. A. V. Small, 2302 Agency Road, St. Joseph, Mo.

Italian queens, THE HONEY-GATHERERS. Price one dollar each, nine dollars a dozen. Edith M. Phelps, 259 Robinson St., Binghamton, N. Y.

Finest Italian queens, June 1 to November, $1.00: 6 for $5.00; my circular gives good methods. Ask for one.
J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

Phelps' queens will please you. Try them and you will be convinced.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. $1.00 each.
Henry S. Bohon, Rt. 3, box 212, Roanoke, Va.

Select golden and three-banded Italian queens, bred for honey-gatherers; gentle and prolific; 70 cts. each; 6, $3.75; 12, $7.25. Virgins, 30 cts.
G. H. Merrill, Pickens, S. C.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, $1.00; tested, $2.00.
Wallace R. Beaver, Lincoln, Ill.

FOR SALE.—Bright Italian queens at 75 cts. each; $7.50 per doz. Ready April 15. Safe arrival and satisfaction guaranteed.
T. J. Talley, Rt. 3, Greenville, Ala.

FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, $6; 10-fr., $7 with queen.
Henry Shaffer, 2860 Harrison Ave., Cincinnati, O.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price $1; 6 for $5. Wm. S. Barnett, Barnetts, Va.

BUSINESS-FIRST QUEENS. — Three-banded Italians—untested, $1.00 each; 6 for $5.00. Send for price list and $10 free offer. No disease.
M. F. Perry, Bradentown, Fla.

Queens, Queens, Queens. We are better prepared than ever to supply you. Untested, 75c each; tested, $1.25 each; select tested, $2.00 each. See our big illustrated ad on first leaf of this journal.
W. D. Achord, Fitzpatrick, Ala.

FOR SALE.—Italian bees and queens. One-pound, two-pound, and three-pound packages, with queens; also on frames and full colonies. Ask for our price list, free beginner's book, and bee-supply catalog.
Deroy Taylor Co., Newark, N. Y.

My bright Italian queens will be ready to ship April 1 at 75 cts. each; virgin queens, 30 cts. each. Send for price list of queens, bees by the pound; safe arrival and satisfaction guaranteed.
W. W. Talley, Rt. 4, Greenville, Ala.

Two-frame nuclei 3-band Italian bees, $2.25; 1 lb. bees with queen, $1.65. Hoffman brood-frames, wired, and foundation, at catalog prices less carriage, if ordered for parcel post. J. B. Marshall & Son, Rosedale Apiaries, Big Bend, La.

My bright Italian queens will be ready to ship April 1, at 60 cts. each: virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

Golden Italian queens that produce golden bees: the highest kind, gentle, and as good honey-gatherers as can be found: each, $1.00; 6, $5.00; tested, $2.00; breeders, $5.00 to $10.00.
J. B. Brockwell, Barnetts, Va.

TO INQUIRERS.—I sell no queens directly, but have an arrangement with The Stover Apiaries, Starkville, Miss., which I keep supplied with best breeders, and they can supply you with my stock.
C. C. Miller, Marengo, Ill.

QUEENS OF SUPERIOR QUALITY.—Untested, 75c each, $8.00 per doz.; select untested, 90c each, $9.00 per doz.; select tested, $1.50 each, $15.00 per doz.; extra select breeder, $5.00.
H. N. Major, South Wales, N. Y.

GOLDENS THAT ARE TRUE TO NAME.—One race only, unt., each, 75 cts.; 6, $4.25; 12, $8.00. For larger lots write for prices. Tested, $1.50; S. T., $2.00; breeders, $5.00 and $10.00.
Garden City Apiaries, San Jose, Cal.

Golden and three-banded, also Carniolan queens. Tested, each, $1.00; 6 or more, 85 cts. each. Untested, each, 75 cts.; 6 or more, 65 cts. each. No bees for sale. I. N. Bankston, Eagle Ford, Tex.

Golden Italian queens from June to November, untested, 75 cts.; 6, $4.25; doz., $8.00; tested, $1.25; 6, $7.00; select tested, $1.50; breeders, $5.00. Bees by pound or nucleus. Pure mating guaranteed. Send for circular. J. I. Danielson, Fairfield, Ia.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, $8.00; select, $1.00; dozen, $10.00; tested queens, $1.25 each; dozen, $12.00. Safe arrival and satisfaction guaranteed.
H. C. Clemons, Rt. 3, Williamstown, Ky.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, $1.00; six, $5.00; dozen, $9.00; tested, $3.00; breeders, $5.00 and $10.00. C. W. Phelps & Son, Wilcox St., Binghamton, N. Y.

My choice northern-bred Italian queens are hardy, vigorous, and prolific. May and June, untested, $1.50; select unt., $2.00; tested, $3.00; after July 1, unt., $1.00; select unt., $1.25; tested, $2.00; select tested, $2.50. Free circular.
F. L. Barber, Lowville, N. Y.

Golden Italian queens of the quality you need, bred strictly to produce Golden bees that are real workers. Untested, one, 75 cts.; 6, $4.25; 12, $8.25; 50 or more, 60 cts. each. Prompt delivery and satisfaction guaranteed.
L. J. Pfeiffer, Rt. A, Box 219, Los Gatos, Cal.

Golden Italian queens from a breeder that was a first-premium winner at Illinois State Fair in 1916; untested, 75 cts.; six for $4.25; doz., $8.00; select untested, $1.00; 6 for $5.00; 12 for $9.00; tested, $1.50; 6 for $8.00.
A. O. Heinzel, Rt. 3, Lincoln, Ill.

Golden Italian queens that produce Golden bees; good honey-gatherers; no foul brood; select tested, $1.25; tested, $1.00; untested, 75 cts.; 6, $4.25; 12, $8.00. After July 1, untested, 65 cts.; 6, $3.75; 12, $7.00. No nuclei or bees for sale.
D. T. Gaster, Rt. 2, Randleman, N. C.

ITALIAN QUEENS, northern-bred, three-banded, highest grade; select untested, guaranteed; queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, one, $1.00; 12, $9.00; 50, $30.00. Send for circular.
J. H. Haughey, Berrien Springs, Michigan.

ENERGETIC HONEY-GATHERERS. — Best three-band stock. Untested queen, 75 cts. Bees per lb., $1.25. In quantity, price quoted on application. Prompt shipments. Safe arrival and satisfaction guaranteed. Shipments ready May 15. No disease in this community. Gila Valley Apiaries, M. G. Ward, Mgr., Duncan, Arizona.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, $1.75; untested, $1.00; in July, $1.50 and 75 cts. Postal brings circular.
John M. Davis, Spring Hill, Tenn.

Good Italian queens. Tested, $1.00; untested, 75 cts. Bees in 1-lb. packages, with untested queen, $2.25; 2-lb. package, $3.25; 1-lb. package, with tested queen, $2.50; 2-lb. package, with tested queen, $3.50. Nuclei, 2 frames, with untested queen, $3.25; 3 frames, $4.00. Nuclei with tested queen, 2 frames, $3.50; 3 frames, $4.25. We can please you.
G. W. Moon, 1904 Park Ave., Little Rock, Ark.

None but the best Queens are sent out by us—three-band Italians that are guaranteed to give satisfaction. Untested queens, 75c; $8.00 per doz.; tested, $1.00 each. No disease. Orders filled promptly. J. W. K. Shaw & Co., Loreauville, La.

QUEENS OF QUALITY.—Our Hand-Moore strain of three-banded Italians are beautiful, and good honey-gatherers. Bred strictly for business. Untested, 75c; half doz., $4.00; select, $1.00.
W. A. Latshaw Co., Clarion, Mich.

Golden Italian Queens, bred strictly for business that produce a strong race of honey-gatherers; untested, each, 75c; 6, $4.25; 12, $8.00; for larger lots write for prices. Tested, each, $1.50. Prompt service and satisfaction guaranteed.
L. J. Dunn, 59 Broadway Ave., San Jose, Cal.

North Carolina bred Italian queens of Dr. C. C. Miller's famous strain of three-banded Italian bees; June 1, untested, 1, 90c; 12, $9.00; tested, 1, $1.25; 12, $12.00; selected tested, 1, $1.75; 12, $15.00. Safe arrival and satisfaction guaranteed.
L. Parker, Rt. 2, Benson, N. C.

Three-banded queens only; ready after May 1. Dr. C. C. Miller queens, $1.00 each; 12 for $10.00; breeders, $10.00 each; my own strain, $1.00 each; 12 for $9.00; breeders, $5.00 to $10.00 each; nuclei and full colonies ready June 1; 2-fr., $2.50; 8-fr., with queen, $8.00; 10-fr., with queen, $10.00. Pounds of bees and queens ready April 1.
Curd Walker, Queen-breeder, Jellico, Tenn.

FOR SALE.—200 colonies of bees, 150 hives full of combs, 100 new hives; all combs built on full sheets of foundation and wired frames. Gasoline-engine, and saws for hive-making; 12 x 14 corrugated-iron honey-house; foundation-mill, extractor and supers, etc. Also 117 acres of unimproved land, all located in one of the best alfalfa-seed-growing sections in northern California. A note with approved surety will take one or both. Reasons for selling. I. C. Bachtel, Lake City, Modoc Co., Cal.

I am again ready to mail queens of my strain of three-band Italians. H. C. Klinger, Sec.-Treas., Pa. State Beekeepers' Assoc. says: "Your queens gave me good results; are prolific; the bees gentle and excellent workers. I am well pleased with them." May 5, 1917. Prices untested, each, $1.00; 12, $9.00. Beekeepers of Pennsylvania, New York, and New England states can save on time and express charges on nuclei and bees by pound from here. Price list free. Yours for more honey.
J. B. Hollopeter, Queenbreeder, Rockton, Pa.

Golden 3-band Italian and Carniolan queens: Virgin: 1, 50c; 6, $2.50; 12, $4.00; 100, $25.00. Untested: 1, 75c; 6, $4.20; 12, $7.80; 100, $60.00. Select untested: 1, 85c; 6, $4.80; 12, $9.00; 100, $70.00. Tested: 1, $1.00; 6, $5.40; 12, $10.20; 100, $80.00. Select tested: 1, $1.25; 12, $13.80; 100, $100. Breeders: $3.00 each. Bees in comb-less packages: ½ lb., 75c; 1 lb., $1.25; 2 lbs., $2.25. Nuclei: 1-frame, $1.25; 2 frames, $2.25; 3 frames, $3.00. Add price of queens wanted. We guarantee safe arrival and no disease.
C. B. Bankston, Buffalo, Tex.

FOR SALE.—Three-band Italian bees and queens. We quote without queen, as follows:—Three-frame nuclei, $2.25; two-frame nuclei, $1.75; one-frame nuclei, $1.25; three pounds bees, $3.25; two pounds bees, $2.25; one pound bees, $1.50. If queen is wanted with bees add price of queen wanted. Young untested queens, $.75; young tested queens, $1.00. Our bees and queens last year gave general satisfaction, and this year we are in position to give stronger nuclei with a greater per cent brood than we did last year. If it is a bargain you are looking for, send your order this way. We are now shipping bees and queens daily. Bees are all in standard hives, Hoffman frames, wired, and full sheets foundation. We guarantee bees to be free from disease.
The Hyde Bee Co., Floresville, Texas.

HELP WANTED

WANTED.—A beeman for a beeyard of 100 colonies. State wages in first letter.
H. C. Ahlers, West Bend, Wis.

WANTED.—Man to work with bees, season 1917. State age, experience, and wages.
The Rocky Mountain Bee Co., Billings, Montana.

WANTED.—Active man with some experience to help in bee and queen yards. Board furnished. State wages wanted.
W. A. Latshaw Co., Clarion, Mich.

WANTED.—Young man between the age of 20 and 35 years to work in bees this summer. State wages expected with board furnished.
F. C. Alexander, Delanson, N. Y.

WANTED.—Industrious young man, fast worker, as a student helper in our large bee business for 1917 season. Will give results of long experience, and board and small wages. Give age, weight, experience, and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

WANTED.—Experienced queen-breeder and all-around beeman—one who is a hustler and knows the business. Young unmarried man preferred. We furnish board and lodging. Write us your age, experience, etc., with lowest wages first letter.
The Penn Co., Penn, Miss.

WANTED.—Young man with a little experience, fast willing worker, as student helper with our 1000 colonies. Crop for past two years, 6 carloads. Will give results of our long experience and small wages; every chance to learn. Give age, height, weight, experience, and wages, *all* in first letter, or expect no answer. E. F. Atwater, Meridian, Idaho.

SITUATION WANTED

In July, with large producer prefered, northern-tier states to Minnesota, eastern man; no student, no lackey. $60—and found; Sundays and the Fourth, mine. Acknowledgment.
A. I. Root Co., Medina, O., Box 20706.

CONVENTION NOTICES

The field meeting of the Colorado Honey-producers' Association will be held at Denver, Saturday, June 16. The office of the association will soon be ready to advise interested parties of place of meeting. Everybody interested in bee culture invited to come.
THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

TRADE NOTES

GLASS JARS FOR HONEY.

Because of the advancing prices of glassware and the increasing difficulty of obtaining various styles at all, we have dropped out of our catalog for 1917 all but the six-ounce tumbler and one-pound round jar which we were able to contract for as needed. We still have in stock at Medina, as well as at our branches, more or less of the styles formerly listed which we shall be pleased to close out at former prices while they last. We give a list here of what we have in stock at Medina, with the price of the same, and will try to give in our next issue a list of stock at our branches. These are bargains at old prices on today's market, and should be taken quickly. They could not be replaced at these prices.

18 cases ½-lb. taper-panel jars, 24 to case, 90c case; 6 for $5.10; 80c per case for lot.

45 cases 1-lb. taper-panel jars, 24 to case, $1.10 case; 6 for $6.50; 95c per case for lot.

30 cases ½-lb. tip-top jars, 24 to case, $1.00 case; 6 for $5.70; 90c per case for lot.

42 cases 1-lb. tip-top jars, 24 to case, $1.10 case; 6 for $6.30; $1.00 per case for lot.

8 crates 1-lb. tip-top jars, 144 to crate, $5.50 per crate; $5.25 per crate for lot.

39 cases 1-lb. Federal or Simplex jars, 24 to case, $1.10 per case; 6 for $6.30; $1.00 per case for lot.

5 cases ½-lb. square jars with cork, 144 to case, $4.00 per crate; $3.75 per crate for lot.

7 cases 1-lb. square jars with cork, 72 to case, $2.50 per crate; $2.40 per crate for lot.

30 cases 1-lb. square jars with cork, 24 to case, $1.10 per case; $1.00 per case for lot.

24 cases ¼-lb. Hershiser jars with aluminum cap, 24 to the case, at 75 cts. per case; 70 cts. per case for lot.

Some of the one-pound square jars may have glass top with rubber-band and spring-top fasteners, same style as the tip-top jar. These are usually worth 75 cts. a gross more than the jars with cork; but we will supply what we have at regular price with cork.

ANOTHER ADVANCE IN PRICE OF COMB FOUNDATION AND BEESWAX.

On May 15 we advanced the price of comb foundation 5 cents a pound—retail, wholesale, and jobbing—on all grades, making a total advance of 10 cents a pound over the rates given in our Jan. 1st price lists. At the same time we mark up the price we pay for average wax delivered here to 38 cts. cash, or 40 in trade, with a premium for extra choice wax of 1 or 2 cents. We are so near the close of the season when wax is used in comb foundation we do not look for any further advance.

On the contrary, the price may recede somewhat after July 1 as the present price is abnormally high. We are glad to see the beekeepers getting a high price for wax so long as they have to pay a correspondingly high price for comb foundation. If you have wax to exchange for foundation, our rates for making up have not changed. These will be sent on application to those interested.

HONEY-BARRELS, SECOND-HAND.

We have accumulated a number of good empty honey-barrels which will serve a good purpose for use again. We offer these as follows:

24 30-gal. bbls. of basswood at 75 cts. each.
9 30-gal. bbls. of cypress at 75 cts. each.
4 30-gal. bbls. of oak at $1.00 each.
4 50-gal. bbls, of soft wood at $1.00 each.
10 50-gal. bbls. of oak at $1.25 each.

While barrels are somewhat cheaper than cans at present prices they are not so convenient to empty, especially after the honey granulates. The demand for tin in packing perishable food products is so great that some may be forced to use barrels in packing their honey.

BUCKEYE DOUBLE-WALLED HIVES.

These hives are having a phenomenal sale this season, as our large stock, prepared in anticipation of reaching thru the season, is about gone already. While we do not advertise to furnish these hives in the 8-frame width we have had occasional calls for this size. In anticipation of these calls we have some stock made up which we offer, to close out, at special price. Of the latest style, with loose bottom, we offer 18 crates of 5 each, one-story, with cover, bottom, and frames, at $12.00 per crate; 5 crates at $11.00 or the lot at $10.00 per crate. Of the older style, with tight bottom, we have 7 crates of one hive each at $2.50 per crate, and 7 crates of five each offered at $11.00 per crate, or the lot of 42 hives for $80.00.

EIGHT AND TEN FRAME DANZ. EXTRACTING SUPERS.

We have to offer 140 eight-frame Danz. supers fitted with shallow Danz. extracting-frames. They are painted, and have been used once for producing chunk honey. The list price of these now is 85 cts. each. We offer them to close out at 35 cts. each. This is a bargain for any one who can use them.

We also have 40 ten-frame supers of same style, new, fitted with fences between the frames to insure straight combs for fancy chunk honey. These sell regularly, nailed and painted, at $1.00 each. We offer this lot, to close out, at 60 cts. each.

COMB-HONEY SHIPPING CASES.

In repacking comb honey in such quantities as we do, we accumulate a good many empty shipping-cases which have been used but once, and will serve a good purpose for use again. While the freight will

be somewhat higher, especially to distant points, considerable time is saved in nailing up. We offer the following: 1280 single-tier for 24 4¼ x 1⅞ sections at 10 cts.; 720 double-tier for 24 4¼ x 1⅞ sections at 10 cts.; 390 single-tier for 24 3⅝ x 5 x 1½ sections at 10 cts.; 400 single-tier for 24 4 x 5 x 1⅜ sections at 12 cts. If new corrugated pads are wanted with these cases add 2 cts. each for same.

12-LB. SHIPPING-CASES.

While we no longer list the 12-lb. cases they are very convenient many times for local delivery of comb honey. Many a retail customer might take a full 12-lb. case who would hesitate to take the larger size. We still have an accumulation of two and three row cases for the regular styles of sections, put up 10 in a crate at 85 cts., or 50 in a crate for $4.00. These prices are less, proportionally, than the regular cases, and are made only to close out stock. If we do not have your size we cannot make them up at this rate.

60-POUND CANS FOR HONEY.

We have in stock at Medina for shipment as needed three carloads of 60-pound tin cans. We have five more cars bought, but are not sure at this writing whether we shall get them or not, because of the restrictions placed on can-manufacturers about the middle of May. What we have we offer while they last. Cans only, without boxes, tied 9 in a bundle, at $3.00; weight, 24 lbs.; 50 in a crate, $20.00; weight, 190 lbs.; 2 in a box at $1.25, or 10 boxes, $12.00; 50 boxes or more, at $1.10.

NO. 4 NOVICE EXTRACTOR, OLD STYLE.

We offer for sale an old-style No. 4 Novice extractor which takes short frames up to 13½ x 13 inches. This has the old-style cast gears without slip gear. It is a machine which has never been used, but has been standing idle in an agency because there is a very small demand for machines of this size. We offer it for $7.00, which is less than half the present price of an up-to-date machine of the same size.

ACCIDENTAL OR INTENTIONAL.

We doubt whether there are many publications in the country requiring as much of their advertisers as do the publishers of GLEANINGS IN BEE CULTURE. The information that we require regarding responsibility, etc., is so searching that not a few would-be advertisers have protested vigorously. One advertiser in particular, a queen-breeder, recently intimated that we had a personal grudge against him because of our requirement of guarantees from him before inserting his advertising. In spite of this care, some advertisements get inserted occasionally that should have had still more searching investigation. Every publisher has the same experience.

On two different occasions the advertising of the Valley Farm Co., Newburgh, N. Y., Geo. W. Mosely, manager, has appeared in our columns. We have before us two complaints, both arising from failure on the part of Valley Farm Co. to remit for honey shipped to them. Drafts sent to the bank in Newburgh were returned unpaid. We have written the Valley Farm Co., but have received no reply whatsoever, except in one instance, when Mr. Mosely wrote us that there were two sides to the situation, and that the matter did not concern us anyway. The matter does concern us, however. Of course, we do not know whether the failure to remit is the result of careless business methods and lack of system or what. We are able to get no explanation whatever.

Special Notices by A. I. Root

THE A B C OF POTATO CULTURE.

If there ever was a time when this book should be kept and studied over and over again, it is just now when potatoes are a dollar a peck, and in some places as I write even $1.25 a peck. It tells all about what is possible to do with potatoes, not only here in the United States, but down in Florida and clear over in the Isle of Jersey and in the Bermudas. An appendix has been added, telling what I have been enabled to do down in Florida during the past winter in growing two crops of potatoes on the same ground in one winter. Our good President has sent out different messages urging men, women, and children to go into backyard gardening for growing standard vegetables, and especially potatoes under present conditions. Our little book, of close to 400 pages, has passed thru four editions, has recently been revised up to date, and is furnished with a good cover, making it specially adapted to the boys' and girls' potato clubs. Price, paper-bound, 50 cts.; neatly bound in cloth, 75 cts. If your children take any notion to potato-growing, hadn't you better give them this book?

"WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT."

The above book was printed close to thirty years ago, and 10,000 copies were made with only a part of the sheets bound and put into covers. As the books did not seem to go off very lively of late years, I made a very low price on the work last December. This low price helped to run the books off; but when the excitement arose about backyard gardening in consequence of the high price of food, it received another start; and when I got back from Florida I was told the books were all gone, both cloth and paper bound, but that there were several thousand of the sheets not yet bound and put into covers. Now, here comes in the trouble: The book originally sold in cloth covers for 65 cts., or 40 if bound in paper. In order to hurry up the sale and get rid of them before they got any older I offered to club them with GLEANINGS so as to make the cloth-bound 25 cts., and paper for 15 cts. When Mr. Calvert got out our catalog for 1917 he advertised the book at 15 and 25 cts., without any mention of their being clubbed with GLEANINGS; and when the war started, and even our President strongly urged backyard gardening, the book just "hit the spot." But here is the trouble: The books were offered at the ridiculously low price mentioned, postpaid; and the postage alone on the paper-covered book to California would be 12 cts., leaving only 3 cts. for a book of 206 pages, weighing almost a pound, that originally sold for 40 cts. We have just had a lot of the books bound up with new covers, and an appendix added in regard to backyard gardening down in Florida, where I grew two crops of potatoes in one winter, and got over $100 for the potatoes grown in my backyard garden. Under the circumstances we are obliged to increase the price of the book, as follows: Paper-bound, postpaid, 25 cts.; cloth-bound, 35 cts.; and even these prices would not pay for the paper and printing at the *present time*.

"HOW TO BE HAPPY WHEN PEOPLE ABUSE YOU."

Many of our readers, perhaps, are aware that we have sent out little tracts with the above title, by the thousand, during the past year. But during my absence in Florida our printing-office was greatly crowded, and I fear a good many of the readers of GLEANINGS who asked for these tracts were told that they were out of print, etc. Unfortunately the requests for them were not all left on my table, so I could not see to the matter when I returned. We now have plenty of them ahead; and if you will kindly repeat your request I think you can have the tracts by return mail. The Home paper for February calls attention to the matter. I am very sorry that many of our friends have been disappointed because their requests did not have the prompt attention they should have.

GOOD BOOKS FOR A SMALL AMOUNT OF MONEY.

In our issue for December 1 I mentioned a number of books at a bargain. Well, they are mostly cleaned out now; but we have remaining one copy of "Barn Plans and Out-buildings," the former price of which was $1.25. We offer it postpaid now for 50 cents.

Of Peter Henderson's Gardening for Pleasure we have two copies left. The original price was $1.25, but we now offer the remaining copies at 75 cents each.

Of Gardening for Young and Old ($1.25) we have four copies left. Present price 60 cents.

Irrigation for Farm, Garden, and Orchard. This was a dollar book, of which we have four copies left, which we now offer at 50 cents each.

Garden and Farm Topics, also by Peter Henderson, a $1.25 book, we have five copies left. We offer them now for 50 cts. each, postpaid.

Onion Culture, by Greiner, a nice 40-ct. book,

cloth-bound. Of this we have two copies left, which we offer at 25 cents each.

Gardenette, a beautiful book clear up to date, and beautifully illustrated, on "high-pressure gardening." See notice in GLEANINGS for Nov. 15, p. 1093, where I gave the book quite a write-up. Price $1.25; clubbed with GLEANINGS, $1.75 for both.

Asparagus Culture, a 40-cent book, we also offer at 25 cents, postpaid.

Alfalfa, a 40-cent book, we offer now at 25 cents.

Merrybanks and his Neighbor, a story about gardening, etc., by A. I. Root, postpaid, 5 cents.

Winter Care of Horses and Cattle, by T. B. Terry, a 40-cent book, we now offer at 10 cents.

Maple Sugar and the Sugar-bush, by A. J. Cook, a 40-cent book, we now offer at 25 cents.

Carp Culture, a 40-cent book, is now offered at 15 cents.

If there ever was a time when these books on gardening, especially *high-pressure* gardening, were needed, it is *just now*, and I need not stop to *explain* why.

OLEOMARGARINE—MORE IN REGARD TO IT.

We gladly give place to the following kind word:

Brother Root:—You surely made a big mistake when you advised oleomargarine as a substitute for butter. At the Wisconsin Experiment Station they proved that butter is infinitely superior to oleo. Butter is filled with God-given life. Oleomargarine is dead fat. In the experiment, rats fed on butter thrived amazingly; but those fed on the oils from which oleo is made did not grow but nearly starved. In justice to yourself, to humanity, and the producer of butter, you should inform yourself and correct the serious error you fell into. I address you as brother, and in that spirit I write the above. You have been one of my chosen guides for 30 years.

East Berlin, Pa., May 9. L. W. LIGHTY.

I notice in the above that no distinction is made between nut butter and that made of animal oil, etc.; and this has been the case with most of the criticisms. The writers, it seems, do not recognize there are two kinds—the animal and the vegetable oleo; or it may be that they mean to class both as inferior to real butter; and I might say, since Mrs. Root and I have used perhaps two or three pounds of the nut oleo, both in Florida and here in Ohio, we have about decided to use the real butter, even if it does cost about one-half more.

Still later. — The *Rural New-Yorker* quotes from an advertisement of the Barre Milk-producers' Association as follows:

Animal fat in butter is worth three times the same amount of vegetable fat which you get in oleomargarine.

Just below the above the *Rural* indorses it as follows:

This is a good advertisement, and it should be kept constantly before the people. Milk is a good food bargain at 15 cents a quart as compared with other standard foods at present prices. As for butter, do not forget that its food value is not the full measure of it. As compared with other fats, butter is alone in containing a principle which is absolutely necessary to children and growing young people. Fats or oils like "oleo" cannot supply the vital principle which comes in pure butter, and in all advertisements of milk and butter this point may well be made plain.

BOOKS AND BULLETINS

"MONEY IN BEES" is the title of a charming book that has come to us from under the Southern Cross, far-away Australasia. It is from the pen of Tarlton-Rayment, an Australasian beeman of no ordinary ability. Space will not permit an extended resumé; but a word from the introduction will prove illustrative. Mr. W. S. Pender says of the book, in the introduction: "Australasian conditions are in many ways peculiar, so that works applicable to other lands are often ineffective here. The author has given us the results of his years of interesting experiences, and has proved in his own apiaries all that he has written, having made apiculture a profitable business." The illustrations are the creations of the author's own hand and brain; nor are they inferior for being "home-made." They prove him as artistic as practical. His originality, too, is shown on many a page and in many a paragraph. He has given a signal proof of his individuality in the treatment accorded the eucalypts, those nectariferous giants of the Australasian forests. The wattles are also fully treated and illustrated. In his entire botanical section he undoubtedly breaks new ground, in that he is the first beeman to attempt anything of the sort for his country. It is the acute and shrewd observations of the man that wake the reader up to the fact that he is reading the work of a real live apiarist and thinker. We wish we had space to illustrate this point. The volume is a real addition to the apicultural literature of the world.

* * *

"BEES AND HOW TO KEEP THEM" is a bulletin (No. 26) by F. W. Sladen, Dominion Apiarist, published at Ottawa, Ont., under the direction of the Minister of Agriculture, Ottawa, Ont. There are 56 pages, 40 excellent illustrations, two of them full-page size, and all wonderfully clear. Especially worthy of note are those of the clovers, goldenrod, and fireweed. The manipulations of most of the work in the beeyard are illustrated from life, and so clear that "he who runs may read" and know. Mr. Sladen, the author, is a scientist as well as a writer, a practical apiarist as well as a close student of nature, and thus eminently qualified to produce a bulletin like this. The brief introduction reads in part: "The purpose of this bulletin is threefold — to point out the advantages of beekeeping; to give, very briefly, reliable advice to the beginner; and to show to those who are keeping bees in the old-fashioned or neglectful way how their profits may be doubled or trebled by the adoption of modern methods." Starting with the saying, "The resources of Canada are inexhaustible," Mr. Sladen handles the topic in such a masterful way that when we lay the booklet aside we feel he has made good his promises in the

Books and Bulletins—Continued

introduction. Among the topics discussed are How to Begin; The Outfit; Races of Bees; Swarm Control; Requeening; Diseases; Bees and Fruit; Associations and Publications, etc. We note an absence of any data on marketing the crop, but it may be that the special nature of this pamphlet precludes that topic. With this slight exception the bulletin seems to cover the entire field of apiculture most concisely and most thoroly. It seems sure that more than the novice could derive benefit from a reading and study of the manual, and we advise all who can to can to secure a copy and make it their own in more ways than mere purchase.

* * *

INTERESTING EXPERIMENTS IN CANADA. Apropos of the review just given we would call special attention to the 37th annual report of the Ontario Agricultural and Experimental Union for 1915, published at Toronto. This report contains two valuable articles for beemen, specially for Canada, but also valuable for beemen all over the country. The article on page 43 and following gives in seven pages of closely printed matter the results of co-operation in experimental work. The Union has printed specially good methods of operation and management, tested and found to be very efficient. These are sent out and are being sent out to beemen all over Canada, and their reports tabulated for further use. They include experiments on prevention of natural swarming in extracted-honey production by holding the colony together; prevention of natural swarming in comb-honey production by artificial shaken swarming; prevention of natural swarming by manipulation of hives instead of combs; spring management to get colonies strong for the honey-flow; fasting method of introducing queens; smoke method of introducing queens; shipping and introducing combless packages of bees; wire-cloth bee-escape board for removing bees from supers; wintering bees in four-hive boxes outdoors; and special experiments of testing foul-brood-resisting colonies. It is interesting to note that, with hardly an exception, the reports from the many apiarists that tried these methods in 1915 show enthusiasm for the methods tried. Many report "better than anything used thus far;" "more honey, less work," etc. It is clear that live men are at work in the government stations in Canada. We cannot refrain from quoting one paragraph, because it is now so apt for the United States. It is on page 48, 49 of the report, as follows: "On account of the war, Canada is piling up an enormous national debt. The only way this can be paid is by developing our national resources. A valuable national resource is the honey which is produced every summer by the many millions of flowers blooming on the farms of Ontario. . . At present many tons are wasted for want of bees." (Could we do better than to follow suit? E. G. B.).

See Labels shown on Pages 417 and 418 of this Issue

No. 5

No. 5 shown above is for use on 5 or 10 lb. pails, or for one or five gallon square cans. It is very striking, and can be read from a great distance. Wording except HONEY can be changed to suit.

Prices—Special for 30 days

No. 5 (Ungummed) in lots of	100.....$1.00		500.....$2.75
	250..... 1.50		1000..... 5.00

Send Your Order to THE A. I. ROOT CO., MEDINA, OHIO, before July 1 for Special Prices.

See Sample Labels Pages 417 and 418 this issue, also last page.

No. 6

This is an ideal label for a 10-lb. pail or 5-gal. square can. Wording may be changed to suit except "HONEY" and "Pure Extracted." Like the label on last page, this is absolutely new and unique in design.

Write us for prices on labels of your own design, sending us sketch and number of colors wanted. We shall be glad to make you estimates.

Prices—Special for 30 days

No. 5 (Ungummed) in lots of 100.....	$1.00	500.....	$2.75
250.....	1.50	1000.....	5.00

Send Your Order to THE A. I. ROOT CO., MEDINA, OHIO, before July 1 for Special Prices.